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ABSTRACT

This report from the Australian Council for Educational Research details the council's activities from July 1, 1979 to June 30, 1980. In the introduction, the council's director comments on the various activities, including educational and psychological measurement, curriculum research and development, studies of the social foundations of education, dissemination of research findings, and the council's contributions to education in Australia. Nine papers given at a seminar on the improvement of measurement in education and psychology are abstracted. Research projects and publications on learning and teaching, foundations of education, measurement and evaluation, library and information services, survey and psychometric services, and advisory services are described. Reports are also given on the council's publishing and distribution services, facilities, finances, and staff matters. (CJ)

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# Contents


| | |
|---|---|
| Members of Council for 1979-80 | 1 |
| Annual Report of the Director | 3 |
| Introduction | 3 |
| Invitational Seminar on the Improvement of Measurement in Education and Psychology | 9 |
| Program in Learning and Teaching | 15 |
| Program in Social Foundations of Education | 30 |
| Program in Measurement and Evaluation | 41 |
| Program of Library and Information Services | 53 |
| Program of Survey and Psychometric Services | 59 |
| Program of Advisory Services | 63 |
| Publishing | 66 |
| Distribution Services | 69 |
| Buildings and Accommodation | 71 |
| Finance | 71 |
| Staff Matters | 72 |
| Conclusion | 81 |
| Contributions to Council Funds | 83 |
| ACER Staff (as to 1 July 1980) | 84 |
| State Institutes of Educational Research | 87 |

Emeritus Professor W.F. Connell presents a copy of *The Australian Council for Educational Research 1930-80* to the President of Council, Emeritus Professor P.H. Karmel, during the Fiftieth Anniversary celebrations, 16 October 1980.

# Members of Council for 1979–80

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# Annual Report of the Director

Presented at the Annual Meeting of the Council on 16 and 17 October 1980
This report covers the period 1 July 1979 to 30 June 1980.

## INTRODUCTION

Fifty years ago, on 10-11 February 1930, a new institution was established in Melbourne to conduct educational research. The Australian Council for Educational Research as it was to become known commenced operation on 1 April of that year. This current year is one in which we are marking the foundation of the ACER in a variety of ways, but it is also a time when we read the fascinating account that Professor W. F. Connell has written of the history of the Council and consider not only what has been accomplished over the past 50 years, but also where we are going in the years ahead.

At the time the ACER was being constituted, there was much debate on an appropriate title for the organization, and while the name finally accepted did not include the term 'service' many of the alternatives considered contained this word. Clearly the concept of service to Australian education and the Australian community was present in the minds of the founders, and this emphasis has always been present in the work of the staff and in the deliberations of the Council.

### Educational and Psychological Measurement

Throughout its life the ACER has been concerned with educational and psychological measurement. It was the area in which the first Director, Dr K. S. Cunningham, had received his postgraduate training and an area in which there has been an ever-present need for research and development activities. Indeed it can be argued that, from the balanced leadership provided by the Council and the two directors who guided its activities throughout much of the period from 1930 to 1980, it has been possible for Australian educational and psychological practice to profit from the benefits of sound research and development in this field without suffering from the excesses that have sometimes occurred in other countries and that have been detrimental to practice in the fields of both education and psychology. Thus it was fitting that the ACER should sponsor an invitational seminar concerned with 'The Improvement of Measurement in Education and Psychology' as an activity to mark the fiftieth year since the establishment of the Council. An account of the seminar is given later in this report. While the seminar was concerned with many of the more technical aspects of latent trait measurement, it was also directed towards the important question of establishing guidelines for research and practice in education and psychology during the coming years.

Dissatisfaction has frequently been expressed with the emphasis, that has developed over the past 75 years, on the use of age and grade norms

in both educational and psychological testing, a practice derived in the main from an approach to measurement based on classical test theory. Today, the comparison of an individual's performance solely with that of his peers is frequently seen to be detrimental to promoting the individual's growth and development. Although the evidence presented at the invitational seminar was not unequivocal and was strongly debated, it would appear likely that the way ahead lies in the construction of scales to assess level of cognitive and affective development. It was clear that such scales were possible where a specific ability or scholastic aptitude was concerned, but it was questionable whether such an approach was appropriate for achievement outcomes. Nevertheless, those researchers who had been exploring the use of latent trait measurement procedures for achievement tests and attitude scales reported favourably on the use of such techniques to measure level of development in a specific domain. Provided the students in the sample employed in the scaling operation and the students whose performance is to be assigned to a value along the scale have had generally common learning experiences, such procedures appear to work and to work well. The importance of such an approach cannot be denied since it would permit a movement away from age and grade norms for reporting level of performance, to the use of stage or level of cognitive development. Furthermore, it would also provide a framework within which criterion-referenced tests for the diagnosis of learning problems could be used, since these tests involve the detailed examination of student performance at a particular level. Thus the two approaches to educational and psychological testing are no longer seen to be in opposition but rather to complement each other.

The invitational seminar gave firm guidelines for the future and exposed for scrutiny the logic, the analytic procedures, and the applications of latent trait measurement, which would appear to permit the construction of developmental scales in a wide range of fields related to educational and psychological practice. It will take time to experiment with these procedures, to test them out in a variety of situations, and to explain them in a simple and coherent way to those who will use them. Clearly it is the role of a research organization to promote work of this kind that is so fundamental to the way in which the measurement of educational outcomes is carried out. From the seminar, the ACER staff can see a way ahead for research and development activity in both latent trait measurement and criterion-referenced testing, areas that are not in conflict, but that together are likely to contribute to more educationally sound approaches to the measurement of cognitive and affective development and the diagnosis of learning problems.

## Curriculum Research and Development

A strand of research and development activity that played an important part in the work of the ACER during the years in which Dr W. C. Radford was Director was that of curriculum development, together with the construction of curriculum materials for use in schools. This program of

work, commenced shortly after Dr Radford became Director, included the promotion of curriculum conferences, sometimes through the auspices of the Australian National Commission for Unesco and sometimes conducted by the Council itself, in such curriculum areas as mathematics, science, social science, and language. In the production of curriculum materials, the work of J. F. Izard in the development of the Individual Mathematics Programme and the work of L. G. Dale in the development of the Junior Secondary Science Project materials stand out. The program of development of curriculum materials culminated in the first major curriculum development project in Australia, the production of the Australian Science Education Project materials. This work was skilfully directed by H. O. Howard and was brought to a highly satisfactory conclusion in early 1974. In the same year, the Curriculum Development Centre was established in Canberra and from that time the ACER has relinquished its role in the field of curriculum development.

There is, however, an important field of activity in which the program of the Council can make a worthwhile contribution in the future. With expertise in measurement, and with an understanding of curriculum development in those areas of the curriculum common to all schools, the ACER is well placed to undertake work in curriculum research and evaluation. A program of research activity would involve the mapping of curriculum change as educational systems in this country transfer from centrally prescribed curricula to a variety of approaches of curriculum development. The mapping of curriculum change involves the use of summary procedures to describe not only the prescribed curriculum in a subject area, but also the operational curriculum and the time given to learning, as well as achievement outcomes. Such detailed mapping and recording of curriculum change is a complex task that does not appear to have been attempted in other parts of the world, yet it is fundamental to an examination of what goes on in schools.

A second important strand is that of developing a methodology for curriculum evaluation in schools and colleges. The ACER recently has completed three studies that have sought to do just this. These studies have wisely refrained from making judgments about the performance of individual institutions or systems, but have rather sought ways and means of encouraging and enabling educational institutions to carry out such work for themselves. Nevertheless, it is disappointing to realize that the work that has been carried out does not relate directly to schools but is restricted to the fields of technical and further education and adult education programs. This work is of sufficient importance that it is hoped that the ACER could make a substantial contribution in the future to programs of evaluation in schools at both the primary and secondary levels.

### Studies of the Social Foundations of Education

The withdrawal of the ACER from the field of curriculum and materials development made available resources which could be used for opening up a new area of research activity. After discussion and debate in 1977, a

decision was made to embark upon a program of research in an area which has become known as the Social Foundations of Education. The work being carried out in this area is characterized as being: multidisciplinary (since it draws on the disciplines of sociology, social psychology, economics, and demography, as well as education); multivariate (since it uses, where appropriate, both the estimation and testing of complex models as well as case study procedures); and policy oriented (since it is directed towards important policy issues). While the research being undertaken is policy oriented, it is grounded in theory from the disciplines, and so it will offer contributions to the theory on which it is based as well as to practice.

The studies currently being carried out cluster around two areas, namely: problems of allocation of staff and resources to schools; and the problems of youth in transition from school to a constructive adult life. These two areas are ones in which insufficient work has been done, either in Australia or overseas, and in which the current problems are expected to be with us for a decade or more. They are areas where the consequences of failing to develop sound policy and practice through a period of changing circumstances could have extensive repercussions on Australian education and Australian society.

The second event, planned for late August 1980 as part of the 50 years celebrations, will contribute to an examination of issues relevant principally to the research program of the Social Foundations of Education Division. An account of 'The Invitational Conference on Societal Change and its Impact on Education' will be given in the Fifty-first Annual Report to the Council in 1981.

The program of research and development being undertaken by the ACER has grown in part out of work that the Council has been engaged in since its inception, and in part out of changing needs and circumstances. It is not a static program continuing the traditional activity of test development, merely replicating work that was carried out many decades ago. Rather it is a vigorous and evolving program that is being reshaped and redirected in response to change in Australian schools and Australian society.

## Dissemination of Research Findings

One of the major questions faced by a research organization is that of dissemination of its research findings to workers at the various levels in the educational system. A study conducted at the ACER and completed during the past 12 months has investigated this question. While a first report (J. Owen, *The Impact of the Australian Science Education Project on Schools*, Canberra: Curriculum Development Centre, 1978) has been published, it is desirable that a more general statement should be prepared for reading by a wider audience. It is hoped that such a report can be prepared during the coming year. This study has aided the examination of how best to spread information arising from research and developmental activity. In collaboration with our colleagues at the New Zealand Council for Educational Research, Mr P. Jeffery of our Advisory

Services staff has helped to produce the first number of a biannual publication, *set*. There has been a heartening response to the publication of this collection of leaflets reporting and interpreting research, and it is hoped that an educationally sound and financially viable enterprise will evolve. At the same time, it is disappointing to report that we have been unable to continue with the regular publication of the *Australian Education Review*. It would appear to require the availability of a member of staff with the time and commitment to elicit contributions to the series and to report where appropriate from his own scholarly work. We are hopeful that the series can be revived during the coming year. Recent numbers of the *Australian Education Review* that have focused on the review, discussion, and interpretation of research have sold well and drawn forth very favourable comment.

## Service to Australian Education

As commented on earlier, the staff of the ACER are engaged in providing service to education in this country. Both Dr Cunningham and Dr Radford found opportunities to serve in a wide variety of ways. In the past 12 months I have been called upon on two occasions to provide advice to educational systems. The first occasion was a request from the Ministry of Education in New South Wales to undertake a review of the procedures employed in the conduct of the Higher School Certificate Examination in New South Wales. This review was carried out in collaboration with Emeritus Professor G. W. Parkyn, formerly Director of the New Zealand Council for Educational Research and Professor of Comparative Education at the London Institute of Education. The conduct of the review took approximately five weeks of my working time and resulted in the preparation of a report that was released by the Board of Senior School Studies in February 1980.

More recently I have been invited to chair a Committee of Enquiry into Education in South Australia. This will be an ongoing commitment over a period of 18 months with the preparation of a final report for presentation in December 1981. The terms of reference for this enquiry are wide ranging and it is envisaged that the report, following approximately 10 years after the enquiry chaired by Emeritus Professor P. H. Karmel, will provide guidelines for education in South Australia for the decade ahead.

Other members of the ACER staff serve education in Australia at different levels and in a variety of ways, and a detailed record of their contributions is provided in a section towards the end of this report.

There are, in addition, certain activities that the Council undertakes as a service to Australian education. These activities include the preparation of the *Australian Education Index* by Mrs M. Findlay and her staff in the Library and Information Services Unit. An activity of some importance during the past 12 months has been the conducting of a study by Dr M. J. Rosier, under the guidance of an Advisory Committee chaired by Professor J. Anderson of The Flinders University of South Australia, into the feasibility of establishing an Australian Educational

Data Archives. Because of the constraints imposed by a reduced level of funding for 1980–81, efforts in this area will have to be curtailed during the coming year. Dr Rosier, in addition, maintains a sampling frame that is available for research workers to use for the drawing of state and nationwide samples.

A further important service activity that the Council has been asked to undertake by the Australian Education Council, which comprises the Ministers for Education of the Commonwealth and the six Australian States, is the Australian Studies in Student Performance. The conduct of this study is being widely debated, and in some circles vigorously opposed.

## INVITATIONAL SEMINAR ON THE IMPROVEMENT OF MEASUREMENT IN EDUCATION AND PSYCHOLOGY

One of the functions held this year to mark the 50th anniversary of the ACER was an invitational seminar which brought together experts who examined and discussed current developments in the field of measurement in education and psychology.

The seminar was held on Thursday 22 and Friday 23 May in the Council Chamber of the University of Melbourne. Sixty-one people attended, including participants from most parts of Australia, and from Canada, The People's Republic of China, Finland, Germany (FRG), Great Britain, New Zealand, and the United States. A highlight of the occasion was the presence of Emeritus Professor R. L. Thorndike, of Teachers College, Columbia University, who was especially invited by the ACER to give the opening paper. His visit to Australia and his tour of the eastern States was supported by the Australian American Educational Foundation.

The seminar was opened by Emeritus Professor P. H. Karmel, and the sessions were chaired by Professor D. Spearritt. An important part of the proceedings occurred at the dinner, which was held on the night of 22 May at University House, where Mr S. S. Dunn, Chairman of the ERDC, gave a lively and thought-provoking after-dinner speech.

During the past two decades, there has been much effort extended by psychometricians in the development and perfection of latent trait measurement models. Yet it is only within the last five years that measurement procedures based upon these models have begun to be used in the practice of educational and psychological measurement in Australia. A few practitioners in these disciplines have learnt of such procedures, but many still remain unacquainted with the features of the various latent trait models. Traditional procedures based on the true-score concept have many shortcomings, such as the sample dependence of item parameters. In contrast, latent trait measurement models such as the Rasch Simple Logistic model are constructed so as to free item parameter estimates from this sample dependence, by specifying relationships between observable examinee performance on the test and the unobserved latent trait which is assumed to underlie performance on the test.

The nine papers presented at the seminar focused on both theoretical and practical aspects of latent trait measurement procedures. To make available the papers and deliberations of the seminar to a wider audience, the ACER will publish the proceedings in 1981 under the editorship of Professor Spearritt. A brief summary is given for each paper.

**Paper 1:** Educational Measurement—Theory and Practice
**Author:** Emeritus Professor R. L. Thorndike (Teachers College, Columbia University, United States of America)

This paper set the theme for the seminar. It described and contrasted important theoretical and practical issues concerned with psychometric measurement and the analysis of test data, that have arisen in education and psychology during the past 75 years. Professor Thorndike pointed out that educational and psychological measurement during this time had involved parallel streams of practice and theory which had flowed together. Beginning with Spearman's classic model of 'true-score' and error, he described the various models of test scores that had emerged. At present there are two major groups of competing models—the domain sampling (or criterion-referenced) and the latent trait models.

In addition, he compared versions of latent trait models currently in use that are based on the works of Birnbaum, Lord, and Rasch. One of his conclusions was that latent trait models are useful in situations that focus on ability measures which reflect general growth, where the person's ability can be related to a vertical trait dimension, of increasing embodiment of the trait. The paper concluded with Thorndike's views on the directions that testing might take in the future.

**Paper 2:** Comparing Latent Trait with Classical Measurement Models in the Practice of Educational and Psychological Measurement
**Author:** Professor J. A. Keats (University of Newcastle, Australia)

Professor Keats showed that latent trait measurement models had features, not possessed by the classic true-score measurement models, which would lead to improved measurement in education and psychology. He compared the classic and latent trait models in the context of theories of cognitive development, and demonstrated the superiority of the latent trait approach, especially of the Rasch model, for modelling cognitive development.

The paper provided formulations of the one- and two-parameter models of cognitive development within the Rasch measurement framework. These formulations are based on a principle which says that the form of the mathematical relationship between behavioural variables should be the same at the group level as it is at the individual level. In addition, he related both ratio IQ and deviation IQ to these models.

**Paper 3:** The Use of Latent Trait Models in the Measurement of Cognitive Abilities and Skills
**Author:** Dr B. Choppin (NFER, Great Britain)

Dr Choppin's paper was concerned with a 'wish to develop a sounder basis for the measurement of achievement'. He described the use of the Rasch model for item analysis, and gave three reasons for adopting this model: (1) it is mathematically simple and convenient to use; (2) the

total correct score contains all the information about the person's ability; and (3) it predicts the behaviour of test items with considerable accuracy.

Dr Choppin argued that more complex models, like the three-parameter latent trait model, were difficult to apply because they required large samples, and did not have the estimation features of the Rasch model. In addition, he described and illustrated with examples how the Rasch model might be adapted to estimate person abilities and item difficulty parameters from incomplete response data matrices, using binary scoring, partial credit scoring, or where scores are provided by markers or judges.

Finally he described current studies, with which he was associated, that employed Rasch measurement procedures, such as those dealing with the monitoring of school performance over time, and the development of item banks.

**Paper 4:** The Linear Logistic Test Model and its Application in Educational Research
**Author:** Professor H. Spada (University of Freiberg, Federal Republic of Germany)

According to Professor Spada, the Rasch model was deficient in at least two ways as it has been used. First, it did not allow for the explanation of item difficulties in cognitive psychological terms, and secondly, it was not geared to the assessment of changes in ability within an educational context. In his paper, he reviewed the developments leading to, and the assumptions underlying, the Linear Logistic Test Model (LLTM) which has been developed by several European researchers to overcome those deficiencies. This LLTM is a version of the Rasch Simple Logistic Model in which the item (difficulty) parameters are decomposed into linear combinations of more elementary parameters associated with cognitive operations (differing in complexity), and representing, for example, effects of instructional measures. He also discussed the assumptions and features of the LLTM in the context of three different empirical studies which have applied this model. The first dealt with a model of thinking and intellectual development. The second was concerned with examining the effects of different instructional measures in the teaching of the instructional unit, 'Nuclear power plants—dream or nightmare?' The third was concerned with the application of the LLTM to develop an instructional unit involving problems which required the recognition of functional relationships.

**Paper 5:** Using Latent Trait Measurement Models to Analyse Attitudinal Data: A Synthesis of Viewpoints
**Author:** Dr D. Andrich (University of Western Australia, Australia)

In this paper, Dr Andrich demonstrated how the Rasch latent trait model accommodated and synthesized both the Thurstone and Likert approaches to attitude measurement. He described the Rasch Rating

Model which is an elaboration of the Rasch Simple Logistic Test Model for ordered response categories for the cases of dichotomous and polychotomous response modes. In the model, an attitude statement is characterized by an affective (difficulty) parameter, with a parameter for person attitude. A feature of the model is the specification of a set of threshold parameters which designate, with respect to the underlying latent attitude continuum, the threshold or boundary points between response categories.

Furthermore Dr Andrich examined the concepts of sufficiency, particularly in relation to the elimination of parameters prior to estimation and the concepts of 'population-free' and 'sample-free'. On the basis of empirical data and Rasch analyses, he suggested that the undecided category, typical in Likert-type attitude instruments, was characterized by a different dimension from that of the other categories and should consequently be eliminated in final versions of an attitude questionnaire.

**Paper 6:** Conditional Inference in a Generic Rasch Model
**Author:** D. G. Douglas (University of Western Australia, Australia)

In this paper, Dr Douglas gave an overview of the current state of the conditional inference argument in the context of Rasch latent trait models, and presented the generic form of a Rasch latent trait model.

Much of the paper was devoted to describing and relating concepts which underpin Rasch measurement procedures—concepts such as specific objectivity, separability of parameters, additivity of parameters, sufficient statistics, and conditional versus unconditional maximum likelihood estimation.

Part of the paper dealt with the mechanics of the generic form of the Rasch model, which was built on a general framework, and which allowed any number of *facets* determining the probability of success on a task to interact simultaneously: for example, 'one marker assessing the essay-writing ability of one subject on one essay question represents a single individual interaction in a three-facet framework'. The generic Rasch model included as special cases, among others, the Binary Item Analysis Model, the Andrich Rating Model, and the Rasch/Andrich Essay Grading Model.

Dr Douglas also examined some numerical analysis problems associated with the conditional inference argument and gave some directions for future research.

**Paper 7:** The Use of Latent Trait Models in the Development and Analysis of Classroom Tests
**Authors:** Dr J. F. Izard and Mr J. White (ACER, Australia)

This paper described how teachers can develop a pool of calibrated items, using simplified test analysis techniques based on the Rasch model. Using the procedures enunciated by Wright and Stone in their recently published book, *Best Test Design*, the authors gave in the first half of the

paper details for the design of progress and review tests based on the notion of a target population and the principle that the best test would be the uniform test in which item difficulties were located at equal intervals along the latent continuum. The examples discussed were of narrow uniform tests, wherein all items had approximately equal difficulties, as might be the case with mastery or criterion-referenced tests.

In the second half of the paper, the authors used procedures developed by Wright and Stone in conjunction with work sheets, to demonstrate how it was possible for 'teachers to use information from an item bank to construct tests with known characteristics, to check that their group of students performed on such tests in a manner consistent with the performance of the reference group used to set up the item bank, and to scale their own items to the continuum underlying the item bank'.

**Paper 8:** The Use of the Rasch Latent Trait Measurement Model in the Equating of Scholastic Aptitude Tests
**Author:** Mr G. Morgan (ACER, Australia)

This paper presented the results of a study which assessed the capabilities of the Rasch Simple Logistic Model (RSLM) in the calibration and equating of final and trial forms of the Australian Scholastic Aptitude Test (ASAT). Working within the existing framework of test development, various versions of the ASAT test were calibrated to a Rasch latent ability continuum associated with whole test and sub-tests determined mainly by item content. Forms which were equated were linked by sets of common items from different content areas, at the whole test and sub-test levels.

The findings of the study indicated that it was possible to calibrate and equate at the whole test and sub-test levels. Moreover the results showed that the RSLM would attempt to fit to a common latent variable groups of items that cohered in some fashion, such as through an underlying general scholastic aptitude factor.

In terms of the ASAT's current use, equated scores could be derived from different forms of the test and applied in the scaling process, thus bringing tests used in different years to a common scale.

**Paper 9:** Some Alternative Approaches to the Improvement of Measurement in Education and Psychology: Fitting Latent Trait Models
**Author:** Professor R. P. McDonald (Ontario Institute for Studies in Education, Canada; professor-elect, Macquarie University, New South Wales)

In the early part of his paper, Professor McDonald considered the role of Spearman's linear common factor model in the interpretation of test scores and its relation to Lord and Novick's generic true-score model and Lazarsfeld's latent linear model. He suggested: 'We can reasonably

consider the normal ogive and logistic (latent trait) models as nonlinear counterparts of the Spearman model'.

Much of the paper was devoted to relating and contrasting McDonald's nonlinear (polynomial) factor analysis model with Rasch and Lord latent trait models. In the paper he demonstrated that latent trait models, such as the normal ogive model, could be treated as special cases of nonlinear factor analysis by expressing the normal ogive curve as an infinite series whose terms were polynomials that were mutually orthogonal under the assumption that the latent trait had a normal distribution.

Features of McDonald's model were that it allowed the analysis of covariance structures, and relied on the use of residual matrices for prescribed structure to assess model fit — a feature not available with the Rasch and Lord models. In addition, he reported the results of computer calculations with constructed examples. These results showed that his model for the analysis of covariance structure produced similar results to those of the normal ogive model. An advantage of the model he proposed was that it did not require prior examination of the dimensionality of the data, but a disadvantage was its asummption that the latent trait was normally distributed.

## PROGRAM IN LEARNING AND TEACHING

### Advisory Committee

Mr A. Webster (Chairman), Mr M. J. Angus, Professor W. J. Campbell, Mr J. Mitchell, Dr P. Tillett, Professor R. P. Tisher, Mr S. F. Bourke, Dr M. J. Rosier, The Director

### Overview

The fundamental problem confronting research within the Learning and Teaching Division is the building of a theoretical framework which can be used to account for school learning and which can be employed in the investigation of teaching and its effects on student learning. The recently completed study into achievement in mathematics by Dr Rosier seeks to bring together the influences of the prescribed curriculum, the time spent in learning, the opportunity to learn and achievement in the field of mathematics. Dr Rosier has examined these influences at two different times (14 years apart) and at two stages of schooling (the 13-year-old and the pre-university levels); and has replicated the analyses across seven school systems. The study of achievement in science that he is about to embark upon will continue within the same conceptual framework. These studies are concerned with the examination of the curricula offered in Australian schools in the areas of mathematics and science. Similarly, the study of oracy by Mr Bourke is concerned with the curriculum provided by schools in the areas of speaking and listening and makes substantial progress in the development of procedures for the assessment of student performance in these areas. The report, when published, will serve to direct attention to those important areas of learning that have received little emphasis, perhaps because so little work has been undertaken in the development of appropriate courses of instruction and perhaps because assessment in the area of speaking has rarely been attempted.

With respect to the Australian Studies in Student Performance, it would be valuable if the opportunity could be taken to examine curricular factors associated with the acquisition of the skills of literacy and numeracy. A well-designed study could include the examination of the effects of programs of remedial instruction, additional time for learning, and the use of certain types of curricular materials. In addition, Mr Bourke has planned what is potentially an important study which seeks to investigate learning thresholds and their relationship to the retention of literacy skills after leaving school. It is to be hoped that such an important and pioneering investigation can be carried through to completion. In addition, Mr Bourke has examined in considerable detail the difficulties encountered by some students in their mastery of the skills of numeracy. This study presents important information for the undertaking of remedial programs as well as providing excellent strategies for the diagnosis of learning problems in the area of number work.

In the study of sub-groups with learning difficulties, Miss J. Mason is investigating sex differences in achievement in mathematics and Dr G. Smith has been undertaking a program of work concerned with children with perceptual motor problems.

Mr Ross is studying a related problem by using census data to identify schools with a low level of achievement. This investigation is being set in the theoretical context of social area analysis and will have application in the identification of disadvantaged schools for the purposes of providing supplementary grants.

With regard to teaching, Dr Keeves and Dr Lewis have continued with the exploration of data, collected several years ago, in an attempt to identify teaching behaviours that influence student learning in science and mathematics. Related work with the same body of data has established the importance of time on task within the classroom setting for student learning. These studies provide the springboard for the work Dr Fordham is planning which involves a sustained program of research into teaching behaviours, their relation to student's time on task, and learning outcomes.

Mr Piper, using mainly case-study procedures, has completed his investigations of curriculum style in the area of social learning and his account of factors influencing the adoption of new curriculum materials in this area. He is now examining curriculum style in the teaching of language and is co-ordinating the evaluation of a program for the production of language development materials.

Mr Mills developed a handbook on evaluation in relation to adult migrant education programs and undertook the preparation of audio- and video-cassettes to assist with explaining the procedures to be employed.

The program of research and development in this area is varied and rich in response to a variety of needs and demands. It focuses on the curriculum that is common to all schools and it strives towards the development of a sound theoretical framework for the study of school learning.

## NATIONAL STUDIES OF EDUCATIONAL OUTCOMES

### Second IEA Mathematics Study

Malcolm J. Rosier, Jillian D. Mason, M. Claire Robinson, Douglas T. Couper

(This project is included in the ACER Core Program. Miss Robinson returned to the Victorian Education Department in February and was replaced by Mr Couper who is also seconded from the Department.)

The final report of the Australian study has now been completed and will be published by the end of 1980. The report will be in three sections: the main report; a report on details of sampling, administration, and data preparation; and a summary of relevant test item statistics.

The study involved an examination of the changes in mathematics curriculum, achievement, and attitudes over the 14-year period between 1964 and 1978. On these two occasions, data were collected from samples of students across Australia at the 13-year-old and pre-university levels. The mathematics tests and attitude scales administered in August 1978 were essentially the same as those administered in August 1964. Background information was also obtained from the students along with some information from mathematics teachers and school principals. In both 1964 and 1978, information was collected from State Education Departments about the mathematics curriculum.

In addition to providing detailed item statistics for each State at each population level, the reports explored the relationship between the curriculum, achievement, background, and attitudinal factors in 1964 and 1978. The emphasis in the reports is on change, and they are addressed particularly to teachers and administrators responsible for curriculum development in order to provide information relevant to the continued revision and modification of secondary school mathematics.

Particular care was taken in this study to build well-documented data files that will be readily accessible for further analyses in the future. The preparation of detailed explanatory codebooks was a major task.

*Publications and Papers*


Keeves, J. P., Mason, J. D., and Rosier, M. J. Fourteen Years on: A Study of 'Yield' in Mathematics at the Year 12 Level. Paper prepared for the ACT Schools Accrediting Agency, March 1980.

Mason, J. D. and Rosier, M. J. Critical Variables in Mathematics Education: A Review of a Book by E.G. Begle and a Statement on Directions for Future Research. Paper presented at the MERGA Conference, Hobart, May 1980.

Rosier, M. J. *Changes in Secondary School Mathematics 1964–78.* (ACER Research Monograph No.8). Hawthorn, Victoria: ACER, 1980.

Rosier, M. J. Sampling, Administration and Data Preparation for the Second IEA Mathematics Study in Australia. Hawthorn, Victoria: ACER, 1980. (mimeo and microfiche).

Rosier, M. J. The Second IEA Mathematics Study in Australia. Paper presented at the IEA Curriculum Symposium, Bielefeld, FRG, January 1980.

Rosier, M. J. Test and Item Statistics for the First and Second IEA Mathematics Studies in Australia. Hawthorn, Victoria: ACER, 1980. (mimeo).

## Second IEA Science Study

Malcolm J. Rosier, Douglas T. Couper

(This project is included in the ACER Core Program. Mr Couper is seconded from the Victorian Education Department.)

In 1970 the IEA Science Study collected data from respondents in 19 countries, which made possible the first major systematic cross-national study to relate achievement in science to characteristics of students, teachers, and schools. Since 1970 in Australia, there has been a major trend towards devolution of decisions about science curriculum and measurement of science achievement from central authorities to schools and teachers. There is little, if any, information about the resulting changes in the nature of the curriculum or the effects on science achievement.

A proposal for a second IEA science study has therefore been prepared. It discusses the aims of the study, study management, methods of curriculum analysis, definitions of populations and samples, instruments, collection and preparation of data for analysis, data analysis, national and international reports, training seminars, proposed timetable, and a draft budget. This proposal and procedures for curriculum analysis will be submitted to the IEA General Assembly in Finland in August 1980.

## Australian Studies in Student Performance

Sidney F. Bourke, John M. Mills, Faye Holzer, Jacki Stanyon (from November 1979), Michael J. Bourne (November 1979 – February 1980), Mark Lim (from November 1979)

(This project is funded by the Australian Education Council (AEC). Mrs Stanyon, Mr Bourne and Mr Lim were seconded from the Victorian Education Department.)

This project has arisen out of the preliminary planning under the title 'Achievement in Schools Study' briefly described in the last Annual Report. The decision to proceed and fund the study was made by the AEC in October 1979. At that time, the AEC set up a Steering Committee to direct the project. The Committee is chaired by Mr D. Swan, the New South Wales Director-General of Education, and consists of a representative from each of the six States and two Territories, the Education Research and Development Committee, the Commonwealth Department of Education and the ACER.

The purposes of the project are summarized briefly as follows:

1 The program seeks to provide national data for some aspects of student performance in basic skills. Such information can be used to direct attention towards some areas which may be in need of improvement.

2 The existence of the program indicates that education authorities recognize the need for students to achieve at least a minimum level of literacy and numeracy.

To meet these purposes, tests in the areas of reading, writing, and numeration have been developed, field tested and revised for use in October 1980 when a light sampling of students aged 10 years and the same number aged 14 years will be tested throughout Australia. In developing the tests, the ACER staff received advice from a Test Development Committee set up in each subject area and also sought comment from each state and territory education department. Administration of the testing program has been planned to take no more than two hours in each school.

The major report of the study will consist of national results stating the proportions of all Australian students able to perform the tasks tested. Many of these tasks will be the same as or comparable with tasks tested in the 1975 study, and comparisons of performance in 1975 and 1980 will be made. This report should be available publicly within eight months of testing.

A summary report of no more than ten pages will also be prepared and sent to schools taking part in the project. This report will be made available to others with a general interest in the study. No individual school or student will be identifiable in any report published as a result of this study. Reports will be concerned with aggregates only.

Although this project was originally intended to operate for a period of five years, the Australian Education Council at its meeting in June 1980 decided that testing should take place in October 1980 and that a decision on any further testing be postponed.

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## Social Indicators of Educational Achievement

Kenneth N. Ross

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(This project is included in the ACER Core Program.)

This study is concerned with the development and validation of several indicators of educational achievement based on certain demographic variables. The sources of data for the study have been the 1971 Australian Census of Population and Housing, and information obtained during the Australian Studies in School Performance in 1975 on the literacy and numeracy skills of Australian 10-year-old and 14-year-old students.

Several indicators of educational achievement have been developed. These indicators employ census variables which have emerged from stepwise regression analyses and principal component analyses as contributing to the prediction of school achievement. Initial analyses have shown that some of these indicators are able to explain over 50 per cent of the variation between schools on tests of Word Knowledge.

Validation analyses carried out so far on some of the better indicators have examined the accuracy with which they can identify schools and

students that have special needs with respect to basic skills in literacy and numeracy.

## The Assessment of Oracy in Australian Schools

Sidney F. Bourke and Faye Holzer

(This project was included in the ACER Core Program and was also funded in part by a grant from the Education Research and Development Committees.)

Following advice obtained from teachers on the more important listening and speaking tasks, tests were devised and approximately 1300 students aged 10 and 14 years were tested throughout Australia. These earlier phases of the oracy project have been reported in previous Annual Reports.

In the period covered by this Report, the analyses of results and report writing were completed. The listening test was divided into a series of sub-tests each concerned with a specific ability, and the proportion of students who were successful on each sub-test and the total test were reported. Successful students for a test or sub-test were those whose estimated true score was 80 per cent of the items correct. If the total test result were taken as an indication of overall listening performance, 62 per cent of the 10-year-old and 79 per cent of the 14-year-old students would be considered as successful. For most sub-tests, the proportions of successful 10-year-old students ranged from 45 to 65 per cent and the proportions of 14-year-old students from 75 to 90 per cent. Almost all the 10-year-old and all the 14-year-old students were successful when comprehending words and simple statements and understanding instructions. However, only a quarter of the 10-year-old students were able to comprehend passages, make critical judgments, and recognize emotional language to the levels required by the sub-tests. When results were compared, it was found that approximately 30 per cent more 14-year-old than 10-year-old students had succeeded in reaching the criterion scores for the listening sub-tests. In each case the majority of students were assessed as being able to perform the task before they reached the end of the compulsory phase of schooling.

For speaking, high proportions of students at both age levels were able to give personal details orally. This was particularly true of the 14-year-old students where at least 95 per cent were correct on each item. The performance of the 10-year-old students was more variable, but the proportion of successful students did not fall below 78 per cent for any item where the students were providing personal details. For other speaking tasks, there was a considerable range in the proportions of successful students. At both age levels, the task of repeating an idea had the lowest proportion of successful students, with 46 per cent of 10-year-old students and 40 per cent of 14-year-old students making an adequate response, and the task of listing facts had the highest proportion of adequate responses, with 99 per cent of successful students. For most items

when the context was familiar to students, at least 80 per cent were able to perform adequately the speaking task that had been set. The adequacy of a student's response was judged according to whether it could have constituted an effective communication. Fluency was among the other assessments made of the various speaking tasks.

At its last meeting in December 1979, the Advisory Committee for this study decided that earlier unpublished work on oracy carried out for the ERDC by Dr M.L. Clark and Dr D.F. Davis should be incorporated into the final report prepared by Mr Bourke and Mrs Holzer on the present ACER study. As a consequence, the publishing of the completed report was delayed.

*Publications and Papers*

Bourke, S. F. The Assessment of Oracy: Feasibility and Methods. In W.J. Crocker (Ed.), *Developing Oral Communication Competence*. Armidale: University of New England, 1980, 123–31.

Bourke, S. F. How can I assess my pupil's status in talking and listening and improve it? In R.D. Walsh (Ed.), *101 Questions Primary Teachers Ask and 101 Answers*. Sydney: Primary English Teaching Association, 1980, 193–6.

Bourke, S. F., Clark, M. L., Davis, D. F. and Holzer, F. *Oracy in Australian Schools*. Hawthorn, Victoria: ACER (in press).

## STUDIES OF THE EDUCATION OF SPECIAL GROUPS

### Learning Thresholds and the Retention of Literacy Skills

Sidney F. Bourke, Gwen Ellemor (to November 1979)

(This project is included in the ACER Core Program.)

Of the students aged 10 years who were tested in the 1975 Australian Studies in School Performance project, a sample of approximately 800 were traced to the school they were attending in 1979. The reading and numeration tests prepared for 14-year-old students in the 1975 study were administered to these students in October 1979. The results have been scored and coded for analysis.

It is intended initially to consider the educational development of these students in reading and number work between the ages of 10 and 14 years in relation to school and family background data available for each student. A model linking performance at the two age levels, family, and school background factors will be tested by means of path analyses for each of the areas of reading and number work. Additional data on performance in the basic skills area will be gathered from these persons in subsequent years to determine retention of literacy and numeracy skills in relation to their current life experiences, school achievement, and family background factors.

## Studies of Sex Differences in Achievement in Mathematics and in Transition from School to Work

Jillian D. Mason

(This project is included in the ACER Core Program.)

This project consists of two distinct studies. The first is an extension of the Second IEA Mathematics Study. Preliminary investigations suggest that the clear sex differences in achievement in favour of males that emerged in all States at both the 13-year-old and pre-university levels in 1964 had been substantially reduced by 1978. Participation rates of females in mathematics courses vary in different States, and it is postulated that the pattern of sex differences in achievement may not be uniform throughout Australia at the present time. If this is so and if significant changes have occurred over time, then genetic and biological factors cannot be of major importance in determining the level of performance in mathematics of girls compared with boys. A review of the literature on sex differences in achievement in mathematics is being written from the perspective of equal opportunity and with particular emphasis on societal factors and changes over time. Results will be discussed with reference to the changing attitudes toward and traditional roles of women in western society. The significance of the study lies in the need for girls to succeed in mathematics at school if they are to achieve occupational equality with men. It is anticipated that a report will be completed by the end of 1980.

The second stage has not yet been planned in detail, but will examine sex differences arising from aspects of the survey of school leavers concerning the antecedents, processes, and consequences of vocational decision-making.

*Publications and Papers*

Mason, J. D. and Keeves, J. P. Sex Differences in Attitudes Towards, Achievement in, and Participation in Mathematics at School. Paper presented at Conference on Improving Maths for Girls, Bridgewater, South Australia, June 1980.

## Studies of Children with Perceptual Motor Problems

Glen A. Smith

(This project was included in the ACER Core Program.)

An initial experiment was run to test the feasibility of the computerized choice reaction time apparatus and procedure with children prior to investigating groups of children with specified lateralities. This preliminary experiment was expanded by incorporating a computer-administered questionnaire—in this instance ACER's ML test—and measuring

response times to individual questions. This could ultimately be used to collect data for speeded ability tests following a Rasch-like model. Both procedures worked as programmed, and the data collected from the sample of 45 girls were analysed to show that only weak correlations ($r = 0.20$) existed between intelligence (as measured by the ML test) and speed of information processing as measured by a range of statistics from the choice reaction tasks. This was contrary to results published by Jensen. A second experiment was run using Raven's Standard Progressive Matrices as the intelligence measure. In the small sample of 16 boys, a stronger correlation ($r = 0.41$) was found. This was interpreted as suggesting that choice reaction time measures correlate with specific components of intelligence in the SPM rather than general intelligence as measured by the ML test (with a small linguistic component). A replication of the second experiment using 45 third-year university students found a low correlation between SPM and reaction time measures, but in the wrong direction. The three experiments were reported at the Experimental Psychology Conference, Sydney, 1980.

*Publications and Papers*

Smith, G. A. and Stanley, G. V. Measures of intelligence and reaction time. Paper delivered at the Seventh Experimental Psychology Conference, University of NSW, May 1980.

Smith, G. A. and Stanley, G. V. Relationships between measures of intelligence and choice reaction time. Bulletin Psychonomic Society (in press).

## STUDIES OF SCHOOL AND HOME PRACTICES

### Educating for Leisure

John P. Keeves and Douglas W. Fox (Melbourne State College)

(This project was funded by a grant from the Australian Government Department of Environment, Housing and Community Development (now the Commonwealth Department of Employment and Youth Affairs), and supplementary funding has come from the ACER Scientific Research Fund.)

The report on 'Educating for Leisure' has recently been published by the Australian Government Publishing Service, several brief articles have been prepared for publication, and several talks have been given by Mr Fox to publicize the work. There is still a considerable body of data to be analysed and reported, that is concerned with how schools go about educating for leisure.

*Publications and Papers*

*Fox, D. W. Educating for Leisure.* Canberra: AGPS, 1980.

## Educational Environment and Student Achievement

John P. Keeves and Ramon Lewis (La Trobe University)

(This project is included in the ACER Core Program.)

It has not been possible during the year to make the progress on this study that was originally expected.

*Publications and Papers*

Keeves, J. P. and Lewis, R. Analysing Data from Naturalistic Classroom Settings. Paper presented at AARE Conference, Melbourne, November 1979.

McGaw, B., Keeves, J. P., Sorborn, D., and Cuming, J. The Mediated Influence of Prior Performance on Subsequent Performance: An Analysis of Linear Structural Relationships. Paper presented at AARE Conference, Melbourne, November 1979.

## Social Learning and the Impact of Innovation

Kevin J. Piper

(This project was funded by the Education Research and Development Committee and the Curriculum Development Centre.)

This study involved an investigation of the impact of the Social Education Materials Project (SEMP) on the programs and practices in social education of 20 schools whose programs in social education had been the subject of an earlier study. It thus offered a unique opportunity for examining the impact of an innovatory curriculum project on a group of schools whose programs and practices had already been under investigation prior to the availability of the materials. The study should not be considered as an evaluation of SEMP, although it may well contribute to such an evaluation. Rather it is a study of the dissemination of the materials, and of their initial impact on the case-study schools, which may or may not be consonant with their long-term impact.

*Publications and Papers*

Piper, K. J. Social learning and the impact of innovation. In M. Skilbeck, D. Francis, and A. Greenall (Eds), *SEMP Studies*. Canberra: CDC (in press).

Piper, K. J. The social learning project: some outcomes and implications. *VIER Bulletin*, 1980, No.44, 1-10.

## Numeracy in Schools

Sidney F. Bourke

(This project is included in the ACER Core Program.)

This investigation which has now been completed has evolved from a study of the teaching of number work in primary schools. The report has three major strands: the framing and general acceptability of a functional definition of numeracy; the development, application and analysis of criterion-referenced tests of some of the domains of numeracy; and the use of such tests in identifying individual student difficulties in numeracy. The third strand focused on the problems of a small number of Year 5 students who had adequate skill in reading but who had problems in working with numbers. Methods being used by these students were examined to enable identification of the types of errors made which were classified according to an error analysis guideline. There were consistencies or patterns in the errors made by most students. The most frequent source of error found for these students was related to the use of inefficient computational methods. These methods were frequently iterative in nature and presented the students with many opportunities for error. Careless errors and algorithmic errors were also major causes of difficulty for these students. It was clear that the students needed constant encouragement if they were to attempt to use and practise the algorithms they had been taught, in place of the inefficient error-prone methods they seemed to prefer.

*Publications and Papers*

Bourke, S. F. Community expectations of numeracy in schools. *Australian Journal of Education*, 1979, 23, 142-52.

Bourke S. F. Error Patterns in Computation. Paper presented at AARE Conference, Melbourne, November 1979.

Bourke, S. F. *Numeracy in Schools.* Hawthorn, Victoria: ACER, 1980. (mimeo).

## Classroom Environment Study: Teaching for Learning

Adrian Fordham

(This project is included in the ACER Core Program.)

The Classroom Environment Study is concerned with identifying teaching behaviours which most influence student achievement and attitude development. The research has four aims: to identify teaching practices associated correlationally with improved student achievement and attitudes; to examine the relationship between the teaching practices and both contextual factors and student learning behaviours; to determine

the degree to which those teaching practices can be fostered through relatively simple teacher training programs; and to determine the degree to which the training and the changed practices cause improved student achievement and attitudes.

The initial stage of the study dealt with the choice of teacher behaviours which warranted investigation. Following extensive literature reviews, 20 teacher behaviours which research had demonstrated were positively and consistently related to student achievement were identified. The set of teacher behaviours comprised both instructional and managerial practices. The instructional practices included the presentation of instructional cues, teacher questioning, and the teacher use of feedback and correctives. The influence of these teaching behaviours upon student engaged time and student achievement provides the underlying instructional model for the study.

The second stage of the study has involved relating the set of teacher behaviours to the context in which teaching and learning occurs. To this end, a survey of teaching practices and context variables has been undertaken. Context variables have included teachers' attitudes to specific teaching practices, curriculum aims, class size and ability level, availability of resources, and amount of allocated time for teaching. Subject matter and grade level are other sources of influence upon teaching practices. Therefore teachers at two grade levels, Years 5 and 8, and working in two subject-matter areas, mathematics and science, constituted the target group for the survey. The survey also possesses a secondary purpose, namely, the identification of a small sample of teachers to participate in the correlational stage of the study, due to commence in early 1981.

During the correlational stage of the study, the set of teaching practices will be observed as they occur naturally in 50 classrooms, and the correlations between their occurrence and educational aims will be ascertained. Information concerning system and classroom characteristics collected in the survey will facilitate the interpretation of the correlations between teaching practices and educational outcomes. This study is being undertaken in collaboration with 14 IEA national centres. The scientific direction for the study is being provided by Professor N.L. Gage, Stanford University, United States of America and the work is being co-ordinated by Dr D. Ryan, Ontario Institute for Studies in Education, Toronto, Canada.

*Publications and Papers*

Fordham, A. M. The Context of Teaching and Learning in the IEA Classroom Environment Study. Paper presented at the IEA Classroom Environment Study: Teaching for Learning, National Technical Officers Meeting, Hamburg, June 1980.

Fordham, A. M. Student Intrinsic Motivation, Science Teaching Practices and Student Learning. Paper presented to the Australian Science Education Research Association Conference, Melbourne, May 1980.

## National Evaluation of the Language Development Project (Phase II)

Kevin Piper

(This project is funded by the Curriculum Development Centre.)

The Language Development Project is a major national curriculum project being undertaken by the Curriculum Development Centre. It is concerned with all aspects of the language development of students in Years 5 to 8, the upper primary and lower secondary years. Phase II of the project is principally concerned with the production of curriculum materials for students and teachers, and the ACER has been asked to undertake an independent national evaluation of this stage of the project's work.

The Curriculum Development Centre's design brief for the evaluation defines the work of the national evaluator: to analyse and give an account of the work of the project; to assist in co-ordinating the work of state evaluators and in developing criteria for evaluation; and to design and co-ordinate the national trials of curriculum materials.

The evaluation is being conducted in three stages. The aim of the first stage, *context evaluation*, has been to identify and clarify the key features and component elements of the project as they have emerged at the end of the first phase: to serve as a baseline reference for the evaluation of Phase II; to identify any areas of confusion, inadequacy, or inconsistency which may need further attention or clarification by the project team; and to assist in communicating the nature and intentions of the project to State Task Forces and Advisory Committees, and to other interested parties. The principal targets of the context evaluation are the assumptions, goals, and structures of the project. The work to date has been principally concerned with this context stage of the evaluation, which formed the basis of the first report of the national evaluator to the Curriculum Development Centre in February 1980, and will continue to be a major component of the second report, which is in preparation.

The aim of the second stage, *process evaluation*, is: to monitor the progress of the project; to provide a critical assessment of the procedures and activities of the project as it develops through Phase II; to provide timely feedback to those concerned with respect to problems and issues as they arise; and to facilitate communication between the various groups and individuals involved in the project.

While the principal target of this stage of the evaluation will be processes, there will be a need to relate these to goals and structures on the one hand, and to anticipated outcomes on the other. Stage II will coincide roughly with the 1980 – 81 financial year, and will form the substance of the third and fourth reports of the national evaluator to the Curriculum Development Centre.

The third stage, concerned with *product evaluation*, will focus initially on the national field testing of the materials produced by the project, although it is anticipated that some preliminary assessment of the impact

of the project on schools, systems, and the wider community will also be possible. It is anticipated that Stage III of the evaluation will begin towards the second half of 1981, probably continuing into 1982, although timing is of course dependent on the completion of work by the developmental teams. This stage of the evaluation will provide the substance for the fifth, and perhaps a sixth, report of the national evaluator to the Curriculum Development Centre.

It is anticipated that a final report will be prepared providing a retrospective overview of the three stages of the evaluation, and discussing the methodological issues that have arisen during its course.

*Publications and Papers*

Piper, K. J. National Evaluation of the LDP (Phase II) Report No.1: A Context Evaluation. A Report to the Curriculum Development Centre, February 1980.

## Teaching Style and Language Learning

Kevin J. Piper

(This project is included in the ACER Core Program.)

This project is concerned with an investigation into current school practices in the teaching of English language, with particular reference to teaching directed towards the attainment of language competence. The aims of the study are: to map the range of approaches to the teaching of English language in Australian schools; to determine the relevance of the concept of curriculum style to the language curriculum, and to determine what modifications, if any, would be required to develop a typology of curriculum style suited to the language area; to extend the concept of curriculum style to include a consideration of teaching methods and instructional techniques; to develop further the concept of competence; and to provide a base map of existing practices in language learning and teaching in Australian schools. The study is being carried out by means of case studies of a sample of schools selected to cover a wide range of approaches to the teaching of language.

The study is essentially concerned with the educational process, with what goes on in schools, rather than with the traditional emphasis on outcomes. Both quantitative and qualitative techniques are being employed in gathering data on a school's policies, programs, and practices in language teaching, and the views of both teachers and students are being canvassed. The study does not seek to be evaluative in nature. Rather it seeks to identify and analyse the variety of approaches to the teaching of language currently employed in Australian classrooms, and to explore their consequences for the kind of language education that students receive.

## Evaluation of the Adult Migrant Education Program

John M. Mills

(This project was funded by the Education Branch of the Commonwealth Department of Immigration and Ethnic Affairs.)

Two video-cassettes and an audio-cassette illustrating techniques for the oral interview were produced with the assistance of the Centre for the Study of Higher Education, University of Melbourne. Teachers from the Victorian Ethnic Education Services and their students also assisted in the production.

The handbook of evaluation methodology prepared for teachers in the Adult Migrant Education Program (AMEP) was published by the Commonwealth Department of Immigration and Ethnic Affairs; copies have been issued to all AMEP teachers. The project officer has continued to participate in the program of teacher education instituted as a result of the Galbally report. In February a workshop was conducted at the second national in-service conference for AMEP administrators, held in Melbourne. In May, papers were presented on student placement and diagnostic testing at an in-service seminar for Queensland AMEP teachers in Brisbane.

*Publications and Papers*

Mills, J. M. *A Handbook on Evaluation for the 'On-Arrival' Stage of the Adult Migrant Education Program.* Canberra: Department of Immigration and Ethnic Affairs, 1980.



33

## PROGRAM IN SOCIAL FOUNDATIONS OF EDUCATION

### Advisory Committee

Professor P. H. Karmel (Chairman), Mr C. Beltz, Dr R. Maddocks, Professor K. Marjoribanks, Associate Professor M. Poole, Professor R. Selby Smith, Dr J. G. Ainley, Dr T. H. Williams.

### Overview

In the two years that the Social Foundations of Education Division has been working under Dr Williams's leadership, it has developed a strong and vigorous program. While the major thrust of this research program is directed towards policy research—research specifically designed to inform social policy decisions—the work is firmly grounded in relevant discipline-based theory. The strength and validity of such research derives not so much from the acceptability of the findings, but rather from the fact that it contributes sound evidence for guiding decision making and also contributes to ways of thinking about and understanding the nature of the issues under consideration. This latter more fundamental aspect of research endeavour is, in the main, not being ignored in the research being carried out in the Division; indeed every effort is being made to ensure that it is central to the planning and conduct of the research program.

The research studies being undertaken have fallen into three groups: studies of the transition from school to adult life; studies of the allocation of staff and resources to schools; and evaluation studies of particular educational policies and programs. Three evaluation studies have been completed and have resulted in publications that have had widespread distribution. Although the investigation concerned with the evaluation of the Education Program for Unemployed Youth was commissioned by the Commonwealth Department of Education to guide future policy in the field, it has been encouraging to find that the strategies described and the instruments employed in the study have started to assist both systems and staff conducting individual programs to undertake evaluation of their own activities. Two other evaluation studies have been completed for the Technical and Further Education Council. These studies were primarily concerned with the development of evaluation methodologies for pre-vocational and in-service education programs in TAFE colleges. However, the information gathered during the studies and reported in supplementary reports has guided policy making with respect to the provision for and conduct of these programs. These studies have been jointly carried out and reported by Dr Ainley and Dr Fordham.

A second major area of research has been that of the transition from school to adult life, and a cluster of research projects has been built up in this area. Indeed two of the three evaluation studies referred to above were concerned with the evaluation of programs operating in this stage of

transition. The central study in this area is the Survey of School Leavers which is being carried out under Dr Williams's direction and is being funded in part from the Core Grant and in part by the Education Research and Development Committee. Linked with this work is a study of unemployed youth and a study of employment and unemployment among the graduates and diplomates of the Victoria Institute of Colleges.

The first report from the Survey of School Leavers was a review of major research in Australia, published in 1979. The second report presents and discusses the empirical findings of the first phase of the survey of youth at school, at work, and in between, and has recently been released.

The third area of work is concerned with the allocation of staff and resources to schools. The main investigation in this area suffered extended delays in the completion of the system level reports. However, further investigations are being planned. One is concerned with the economic analysis of school resource allocation patterns; and the other, which is being undertaken in the Learning and Teaching Division, is concerned with the relationships between teaching practices, teacher satisfaction, and the allocation of resources to schools. At a time when expenditure on education is clearly limited and when a decline in enrolments is occurring, studies of the allocation of resources to and within schools must be expected to provide evidence to assist with the development of effective policies.

The issues being investigated in this Division are of major importance to Australian education. They are studies which break new ground both methodologically and theoretically, and the coming year will see the completion of reports that will be of considerable interest to administrators, policy makers, and educational research workers in this country and overseas.

## EVALUATION STUDIES OF PARTICULAR POLICIES AND PROGRAMS

### Evaluation of the Education Program for Unemployed Youth

Graeme D. Hubbert

(This project was funded by the Commonwealth Department of Education.)

The report of this study argued that the EPUY scheme, for school leavers who found it hard to get or to keep jobs, made a high proportion of them 'more employable', in spite of the fact that many taking part in the scheme held negative attitudes towards formal schooling. The evaluation study focused on 72 EPUY courses in New South Wales, Queensland, South Australia, and Victoria. These courses lasted between six and 20 weeks and concentrated on literacy and numeracy,

guidance and counselling, and vocational and job-seeking skills. The study received support and assistance from large numbers of people associated with EPUY courses. Youth who had completed EPUY programs answered questionnaires as did unemployed youth seeking employment through Commonwealth Employment Service offices.

The evaluation study had two purposes: first to evaluate the effectiveness of EPUY in achieving the aim of improving employability, and secondly to study unemployed school leavers in order to learn more about their educational, vocational, and personal needs. Using comparisons between the programs provided in different States, the report made recommendations for the conduct of future EPUY programs, concerned with staffing arrangements, the selection of participants, and the content of the EPUY courses.

*Publications and Papers*

Hubbert, G. D. *An Evaluation of the Education Program for Unemployed Youth.* Canberra: AGPS, 1980.

Hubbert, G. D. *An Evaluation of the Education Program for Unemployed Youth: Summary Report.* Canberra: AGPS, 1980.

## TAFE Pre-vocational Education Project

John G. Ainley and Adrian M. Fordham

(This project was funded by the Technical and Further Education Council.)

This project was principally concerned with developing an approach to the evaluation of full-time programs of work preparation in TAFE which have been recently developed. In the study of evaluation methods appropriate to these programs, attention has been focused on the issues associated with the transition from school to adult life. The stated intentions of these programs have included considerations of the interest and abilities of students to whom they were directed, the provision of a learning environment similar to the world of work, and the desired outcomes.

Methods were developed for obtaining and analysing information about students' entry characteristics, the teaching processes, and the learning environment they experienced, and assessing such outcomes as career maturity, self-esteem, and technical competence. In addition, consideration was given to longer-term outcomes such as employment rates, job stability, and job satisfaction. Techniques which were used in the study included interviews, observation, questionnaires to students and teachers, and follow-up studies of former students.

In the study of these programs, a broad view was taken of evaluation. The different purposes which could be served by evaluation in planning new programs, developing appropriate materials and methods, implementing new programs, and revising existing programs were considered together with forms of evaluation appropriate to these purposes. Atten-

tion was also given to the different roles which evaluation would serve as part of the development of a program or in reaching a final judgment about the effectiveness of a program. The approach to program evaluation was based on a general framework incorporating three important elements: background factors, processes, and outcomes. In the evaluation, background factors included the characteristics of students and teachers as well as the context in which the program operated; processes were the teaching methods and curriculum-related activities which took place in the program; and outcomes were the changes in the students, teachers, or other participants to whom the program was directed. It was also necessary to consider both immediate and long-term outcomes. Immediate outcomes referred to the practical skills, knowledge, and attitudes developed by students at the conclusion of their course. Long-term outcomes referred to the level and type of employment obtained, job stability, and job satisfaction.

The approach to the evaluation of pre-vocational education was tried in four newly developed programs which attempted to simulate the conditions of a young person at work. Three reports have been completed. The first was an account of the methodology, the second concerned the results obtained in its trial, and the third presented a summary of the two reports.

*Publications and Papers*

Ainley, J. G. and Fordham, A. M. An Approach to the Evaluation of Pre-vocational Education in Technical and Further Education: A Proposed Methodology. Hawthorn, Victoria: ACER, 1979. (mimeo).

Ainley, J. G. and Fordham, A. M. *Between School and Adult Life: An Approach to the Evaluation of Pre-vocational Education.* Hawthorn, Victoria: ACER, 1979.

Ainley, J. G. and Fordham, A. M. Some Aspects of Pre-vocational Education. In G. Rowley (Ed.), *Proceedings of the 1979 Annual Conference of the Australian Association for Research in Education.* Melbourne: AARE, 1979, 84-6.

Ainley, J. G. and Fordham, A. M. Four Programs of Pre-vocational Education. Hawthorn, Victoria: ACER, 1980. (mimeo).

## TAFE Staff Development Project

Adrian M. Fordham and John G. Ainley

(This project was funded by the Technical and Further Education Council.)

The major purpose of this project was to construct a methodology with which TAFE authorities, institutions, and individuals could evaluate staff development programs and activities. The study initially examined the rationale for the Technical and Further Education Council's Staff

Development Program and described three models by which the program might be managed in TAFE colleges. A collaborative management model, whereby both general staff and senior management in a college manage the program, was considered most suited to Australian technical and further education. Evaluation was viewed as an integral part of this management approach to staff development. An evaluation strategy was proposed which utilized the staff development responsibilities of general staff, heads of section and senior management or, more typically, staff development committees.

The strategy sought the following types of information from each of these three groups of college personnel: (1) background factors—staff and college needs as well as both system-wide and college-specific factors affecting staff attendance at activities and the introduction of new ideas and skills into the classroom or workshop; (2) processes—staff development activities attended by staff and practices adopted by the college in the management of the program; and (3) outcomes—immediate and longer-term outcomes from which individual staff, the college as a whole, and the entire TAFE system benefit.

Procedures for the collection of this information were designed and tested in TAFE colleges in two quite different TAFE systems in Australia. The data collected in the trial of the methodology served two purposes. First, it indicated the appropriateness of the suggested strategy for evaluating staff development. Secondly, the trial provided data which, together with other available evidence, drew attention to several issues pertinent to the future directions of staff development in Australian technical and further education.

*Publications and Papers*

Fordham, A. M. and Ainley, J. G. The Evaluation of Staff Development in Technical and Further Education: A Summary of the Reports. Hawthorn, Victoria: ACER, 1979. (mimeo).

Fordham, A. M. and Ainley, J. G. Issues in Staff Development for Australian Technical and Further Education. Hawthorn, Victoria: ACER, 1979. (mimeo).

Fordham, A. M. and Ainley, J. G. An approach to the management and evaluation of staff development. In Collected Papers of the National Staff Development Officers Conference for TAFE Authorities. Hawthorn, Victoria: Education Department, Technical Schools Division, 1980. (mimeo).

Fordham, A. M. and Ainley, J. G. The Evaluation of Staff Development in Technical and Further Education—A Proposed Methodology. In Collected Papers of the National Staff Development Officers Conference for TAFE Authorities. Hawthorn, Victoria: Education Department, Technical Schools Division, 1980. (mimeo).

Fordham, A. M. and Ainley, J. G. *The Evaluation of Staff Development in Technical and Further Education: A Proposed Methodology*. Hawthorn, Victoria: ACER, 1980.

## Staffing and Resources in Australian Schools

John G. Ainley, John P. Keeves, Phillip A. McKenzie, Andrew Sturman, Trevor H. Williams

(This project is funded in part by grants from the participating education departments through the Australian Education Council, and in part from the Core Grant.)

This study has been commissioned by the Australian Education Council as an investigation of the allocation of staff and resources to government schools in New Zealand, each Australian State and the Australian Capital Territory. A Steering Committee is responsible for major policy decisions for the study, a Reference Committee provides assistance in identifying issues and suggesting priorities, and a Technical Committee helps with technical issues involved in the project and provides liaison with each education department.

The investigation will examine:

1 existing policies, procedures, and trends relating to the allocation of staff and resources to schools;
2 difficulties faced by school systems in allocating staff and resources to schools;
3 the practices of individual schools concerned with the problems of allocating staff and resources within the schools;
4 measures currently being taken to overcome difficulties encountered by schools and school systems;
5 the views and opinions of teachers and students on differing policies and practices associated with the allocation of staff and resources to and within schools; and
6 new developments and alternative arrangements for staffing schools which already exist.

By examining practices and policies of the education systems under survey, it is hoped the study will be able to suggest:

1 action which can be taken by schools and systems to improve existing arrangements;
2 field studies, or research projects, which schools and systems can carry out to improve the effectiveness of methods of allocating staff to schools; and
3 future directions for policies and procedures concerned with the allocation of staff and resources to schools.

As part of the study a series of working papers has been produced to inform interested parties of progress which has been made.

One facet of the study involves a study of the policies of education systems. With general co-ordination from the ACER, each system has been asked to prepare a report which describes present policies and practices with respect to staff allocation, identifies problems, and outlines innovatory practices. Some reports are to hand at this stage but others are proving rather longer to write than had been anticipated.

A second facet of the project involves a nation-wide survey of policies and practices employed by schools. Fifty primary and 50 secondary schools in each system have been surveyed by means of a questionnaire completed by the principal. The response rate to the questionnaire proved satisfactory and the data are currently being analysed.

A third facet of the project comprises the case study of selected resource allocation practices, and planning of these core studies is in progress.

*Publications and Papers*

Ainley, J. G. Resources and methods in science teaching. In G. Rowley (Ed.), *Proceedings of the 1979 Annual Conference of the Australian Association for Research in Education.* Melbourne: AARE, 1979, pp.84-96.

Ainley, J. G. The importance of facilities in science education. *European Journal of Science Education*, in press.

## An Economic Analysis of School Resource Allocation Patterns

Phillip A. McKenzie

(This project is included in the ACER Core Program.)

This study is concerned with the effects of school resource levels and school resource usage policies upon the uses made of teachers' time and, through this, upon student achievement. The particular focus is upon the relative cost-effectiveness of different means of increasing the amount of teacher instructional time received by each student. If it is possible to identify the most cost-effective policy of increasing the amount of instructional time per student within the resource constraints faced by schools, wider adoption of that policy may enable the releasing of resources for other purposes within the schools.

Determining the relative cost-effectiveness of alternative school resource allocation patterns in terms of the amount of instructional time received by students involves the following stages: (1) identification of alternative school resource allocation practices; (2) measurement of the relative financial costs of alternative school resource allocation practices; and (3) measurement of the amount of time which teachers operating under these allocation patterns spend upon instructional and non-instructional activities.

The study provides an opportunity to acquire micro-economic data on the effects of school resource levels and allocation policies upon teachers and students. As such, the study is complementary to two other ACER projects, namely the Staffing and Resources Study and the IEA Classroom Environment Study: Teaching for Learning Study.

## NATIONAL STUDIES OF EDUCATIONAL OUTCOMES

### A Survey of School Leavers

Trevor H. Williams, Margaret Batten, Jeffery J. Clancy, Susan Girling-Butcher

(This project is funded in part by a grant from the Education Research and Development Committee, and in part from the Core Grant.)

Six studies define the research program developed under this title, and all focus on aspects of the influence of education and work on the transition of youth to adult life. Much of the program is designed around follow-up studies of the two national samples of students (10-year-old and 14-year-old students in 1975) used in the 1975 Australian Studies in School Performance.

A survey of some 6200 respondents in the older sample was undertaken during the summer of 1978-79. It yielded information about the various factors which affect the transition process, particularly those influential in the transition of early school leavers into the workforce.

The following patterns of effects were examined:

1 the effects of State or Territory of residence, school system (Government, Catholic, Independent), family rurality, school rurality, father's occupation, father's education, mother's education, family size, and the respondent's sex on achievement in basic skills;
2 the effects of all of these factors, including achievement in basic skills, on whether or not an individual becomes an early school leaver and, among early school leavers, the number of year levels completed before leaving; and
3 the effects of all of these factors on success in the early working life of early leavers and on their degree of involvement in further education.

The findings of these analyses have been presented and discussed in the published report.

A second questionnaire was sent to this sample in October 1979. It will provide more detailed information about the current status of the early school leavers, and the work and study plans of those students who completed their secondary education in 1979.

A parallel study of the development of vocational decisions focused on the younger sample from the Australian Studies in School Performance, those aged 14.00-14.11 years in October 1979. A nationally representative sub-sample of 1000 students were sent three questionnaires over the year, two concerned with the 'Quality of Student Life', and one with 'School and Work'. Similar patterns of effects to those noted above have been examined in the analysis of the data. Most members of this sample are still at school, but the data will also provide information about a small group of early school leavers.

The Quality of Student Life component of the program has led to the development of a measure which incorporates the dimensions of general

satisfaction, positive and negative affect, and four domains of schooling. Particular attention has been focused on the refinement of the model in terms of the four domains of schooling—personal development, social integration, technical competence, and social responsibility. A paper detailing these developments was presented at the 50th ANZAAS Congress. In addition, case studies are being carried out in seven Melbourne schools which will enable further exploration of the concept in general, and a detailed examination of the differences in quality of school life between schools and between year levels.

*Publications and Papers*

Williams, T. H., Batten, M., Girling-Butcher, S. and Clancy, J. J. Quality of School Life. Paper presented at the 50th ANZAAS Congress, Adelaide, May 1980.

Williams, T. H., Clancy, J. J., Batten, M. and Girling-Butcher, S. *School, Work and Career: 17-year-olds in Australia.* (ACER Research Monograph No.6). Hawthorn, Victoria: ACER, 1980.

## STUDIES OF THE EDUCATION OF SPECIAL GROUPS

### Studies of Unemployed Youth

Jeffery J. Clancy and Trevor H. Williams

(This project is included in the ACER Core Program.)

This project is investigating two issues in the area of youth unemployment. First, it is concerned with the social and psychological consequences of unemployment—whether being or having been unemployed makes a difference to the way teenagers think about themselves. Secondly, it is concerned with how unemployment can affect occupational development and the transition from school to work. The study began during 1978 and will be completed during 1981.

The first phase of the project, which ran from mid-1978 to the beginning of 1980, was undertaken in conjunction with the Survey of School Leavers. Both studies have followed up the former 14-year-old sample from the 1975 Australian Studies in School Performance. The 6200 teenagers in this group were surveyed by a mailed questionnaire at the end of 1978 which sought information on their educational achievements, family background, and occupational history. The data from this survey were coded and analysed during 1978 and formed the basis of a major report. A second questionnaire was sent to the sample at the end of 1979 and the coding and analysis of these data are now underway.

The second phase of the project began in 1980. This involved selecting a sub-sample of more than 200 Victorian teenagers by using information collected in the two surveys. This sample is now being interviewed in

order to obtain detailed information on the effects of unemployment on self-esteem, quality of life, work attitudes and values, occupational development, and leisure activities. These data will be coded and analysed during the last half of 1980 and the final report on the study will be available during 1981.

*Publications and Papers*

Williams, T. H., Clancy, J. J., Batten, M. and Girling-Butcher, S. School and Work. Paper presented to the Australian College of Education Conference, Perth, August 1979.

Williams, T. H., Clancy, J. J., Batten, M. and Girling-Butcher, S. School, Work, and Career: Eighteen-year-olds in Australia. Paper presented to the OECD Conference on Rural Education, Perth, November 1979.

## The Employment of Graduates and Diplomates of Colleges of Advanced Education

Warren B. Jones

(This study is funded by the Victoria Institute of Colleges through a grant from the Malcolm and Annie Moore Estate.)

This study is concerned with the employment patterns, unemployment rates, and job aspirations and expectations of students, graduates, and diplomates of colleges of advanced education affiliated with the Victoria Institute of Colleges. The attitudes and recruiting techniques of employers of graduates and diplomates were also considered together with the attitudes and recruiting practices of employers who do not usually employ tertiary trained staff.

Parallel questionnaires developed to examine these issues were sent to samples of first and final year students, and graduates and diplomates (who graduated in 1976 and 1978) between July and September 1979. Just over 9000 questionnaires were sent out by mail. In addition 200 employers were surveyed by the ACER and a further 600 surveyed by three large Victorian employer organizations on the ACER's behalf.

Some of the more general findings of the project are of interest:

1 On average, the more recent graduates (1978) took marginally longer to find a job than graduates of two years earlier (1976). There were no differences between the two groups in the short-term unemployment rate, but a higher proportion of the 1978 group were not engaged in full-time work at the time of the survey.
2 The job aspirations of students were higher than those of graduates and diplomates, but there was no difference between the groups in the level of job they expected to achieve soon after graduation.
3 For most employers, the future rate of employment of new graduates and diplomates over the next five years would remain relatively con-

stant. About 20 per cent of the employers expected a noticeable future increase in some areas of study.

4 There were only small differences in these anticipated trends between the private and public sectors.

5 There would currently appear to be very few opportunities for new graduates and diplomates with employers who do not usually employ tertiary trained personnel. However, it would seem likely that such employers will in future recruit staff who have received training in preference to those who have not.

An interim report has been circulated and a final report is in preparation.

## PROGRAM IN MEASUREMENT AND EVALUATION

### Advisory Committee

Professor D. Spearritt (Chairman), Dr A. Barton, Mr L. D. Blazely, Professor J. A. Keats, Professor B. McGaw, Mr P. Varley, Dr J. F. Izard, Mr G. Morgan, Mrs H. A. H. Rowe

### Overview

Following the return of Dr Izard from a period of work at Educational Testing Service, Princeton, the program of this Division has sought not only to maintain its on-going activities of test maintenance and test development for service purposes, but also to advance into new fields with the development of progress and review tests. Progress tests are essentially diagnostic in nature and require the use of a criterion-referenced approach to educational measurement. Review tests are seen to involve assessment on an underlying trait of achievement in a specified domain, and thus to measure level of development or growth within that domain. Important questions confronting the research worker who attempts to use both strategies in the one program of test development are whether both approaches to measurement will operate effectively with respect to achievement testing and whether they can be made to be complementary rather than being in conflict with one another. The outcome of conflict would be that contradictory and confusing information would be supplied for the classroom teacher to use. The consequences of the development of complementary approaches would be the provision of effective and efficient procedures for classroom testing.

The staff working in the Division have been engaged in the development of tests that might be expected to be used in one or other of these two complementary modes. They have conducted field trials of these tests and analysed the data collected to determine whether the tests satisfy the specified conditions, or whether, with further refinement, effective tests can be produced, and whether the dual approach to classroom testing must be abandoned, and a simpler somewhat intuitive approach must be adopted.

One further advantage of the use of strategies that employ sound measurement procedures is that a pool of test items can be used effectively to construct tests with specified characteristics. This would seem to be leading the program of research and development back into a field in which the ACER was engaged from 1973 to 1977, namely the field of item banking. The work undertaken over those years led to the assembling of vast pools of items, but with insufficient information available for the items to be used other than in an intuitive way for the construction of classroom tests. Around the world, there has been renewed interest in item banking, and it was fortunate that Mr J. D.

White, a member of staff on secondment from the Victorian Education Department, was able to attend a meeting, held at the National Foundation for Educational Research in England and Wales and conducted by the International Association for the Evaluation of Educational Achievement (IEA). In other countries, the item banking approach to test construction is being accepted as a potentially useful one, but there is widespread debate on whether it is possible to store information on items in a manner that would permit the construction of different types of tests. This is an important field of research and development activity which should be pursued, although it would not appear to be appropriate to engage in extensive work in this field at present. Nevertheless, if the current work around Australia in the development of classroom tests is to permit flexibility in test construction as changes occur in curriculum, then it would seem that an item banking approach must eventually be employed. For classroom testing activity in the future, it would seem essential to keep abreast of developments taking place in other research centres. At the same time, the ACER should continue with a program of research and development that investigates test construction procedures appropriate for the work in hand and also allows for the possibility of adopting more flexible procedures in the future.

## THE DEVELOPMENT OF TESTS AND INSTRUMENTS FOR USE BY TEACHERS AND GUIDANCE OFFICERS

### School Achievement Tests

Graham Ward, Stephen Farish, Barbara Johnson (to April 1980), John E. White (to April 1980), Mark Wilson, John F. Izard

(This project is funded in part by ACER's income from sales, and in part from the Core Grant. Mr Farish and Mr Wilson are seconded from the Victorian Education Department.)

This project has been concerned with the development of tests over a range of subject areas for use in primary and junior secondary classrooms. Following a three-day workshop held in Sydney in June 1979, at which arrangements for the test development program were made, the production of pools of items proceeded, with groups working at the ACER and at the New South Wales Department of Education in the areas of computation and measurement, reading, and study skills. Meetings of each of these working groups were held separately during September and October to examine the work done and to plan in detail trial testing programs.

A major trial testing of the computation item pools was undertaken in November 1979, by the ACER in co-operation with the working groups from the New South Wales Department of Education and the ACT

Schools Authority, in schools in the ACT, New South Wales and Victoria. This involved testing items for 65 objectives in four computation areas together with four sets of number facts items. The analysis of these results is proceeding at the ACER. The Rasch model is being used extensively in these test analyses, and items are being selected for a number of criterion-referenced progress and review tests due for publication late in 1980. It is proposed to make these items available in the form of master copies so that teachers may select those items which are most appropriate to the programs of their own school and classroom.

A parallel series of trial testing undertaken in other Victorian schools involved items in reading, measurement, and study skills. The resulting data are being analysed.

Early in 1980, work began on revising the Progressive Achievement Tests, Mathematics A and Mathematics B. Items were examined, some were modified or rewritten, and some new items were produced. Trial test forms were then assembled and arrangements were made for a trial testing program. A re-examination of the Progressive Achievement Tests, Reading Comprehension A and B and Reading Vocabulary A and B has been undertaken. A series of trial tests of these and other tests in the reading area was undertaken in Victorian schools in April 1980 and a further trial testing is being arranged in South Australian schools during August. These trials will provide data to re-examine the difficulties of the items, the placement of items within the tests, and the allocation of item groups to year levels. A manual supplement is to be prepared. The Progressive Achievement Tests in Listening have also been revised and preparations are being made for trial testing the items in schools in two States.

*Publications and Papers*

Farish, S. The Application of Rasch Analysis to Basic Computation Tasks. Paper presented at the MERGA Conference, Hobart, May 1980.

## Career Planning and Guidance

Janice Lokan and Meredith Shears

(This project is included in the ACER Core Program.)

There have been three main thrusts in this project during 1979-80. The first half of the year was devoted to the collection and preliminary processing of Australia-wide norming data for the locally adapted version of Super's (1976) *Career Development Inventory* (CDI). The data were collected between July and September 1979, from random samples of about 1200 students at each of two levels (age 14 and Year 11) attending a selected sample of government and non-government secondary schools. Initially it was intended that work on the CDI would continue

throughout the year so that the instrument and manual could be published by June 1980. However, with the rise in government support for education and training programs for unemployed youth and an accompanying rise in interest in instruments which could be used in such programs, it was decided to change priorities so that work on the Program for Assessing Youth Employment Skills (PAYES) could continue. It is now anticipated that the CDI will be ready for publication in January 1981.

The PAYES materials were developed at the Educational Testing Service especially for adolescents and young adults with low verbal skills. The battery includes measures of attitudes such as self confidence, job holding skills and attitude toward supervision, measures of vocational interests and measures of job knowledge, job seeking skills and practical reasoning skills. Data for a locally adapted version of the materials were collected in 1979 from students in EPUY programs and from students in secondary schools. These data have been processed and a panel of educators, employers, and researchers has developed a set of specifications for levels of acceptable performance on the tests. Negotiations with both the Educational Testing Service and the publisher of PAYES in the United States are in progress and it is expected that the Australian PAYES will be published by the ACER early in the 1980-81 year.

The third aspect of work in the career planning and guidance project during 1979-80 has involved the preparation of a literature review on 'orientation to work' in Australia for the international Work Importance Study currently in progress in 15 countries. The draft review prepared will be updated and restructured during 1980-81 for publication in the Australian Education Review series.

*Publications and Papers*

Lokan, J., Boss, M. W., and P. J. Patsula. Locus of control in relation to indices of vocational maturity in adolescence. Submitted for publication in *Journal of Counseling Psychology*.

## Curriculum Materials Evaluation

Peter Jeffery

(This project is funded by ACER's income from sales.)

Very little progress has been made on the study of how teachers obtain their information on curriculum materials. Materials have been placed for trial and three Review Reports have been produced.

*Publications and Papers*

No. 31 *Developing Understanding of Self and Others (DUSO-D1)*. Sue Crocker, Pat Griffiths, Education Department, Tasmania.

No. 32 *Towards Affective Development (TAD).* Wayne Gillies, Mulwaree High School, New South Wales.

No. 33 *Bruininks-Oseretsky Test of Motor Proficiency.* J.G. Jones, University of Western Australia.

## Chemistry Unit Tests

Peter Martin (until January 1980), Chris Commons (from February 1980)

(This project is funded by ACER's income from sales. Mr Martin and Dr Commons are seconded from the Victorian Education Department.)

The purpose of this project is to develop a collection of multiple-choice chemistry items for use in secondary schools at Year 11 and Year 12 level. Items are being written mainly by teachers. Items produced in 1979 have been published under the title *ACER Chemistry Test Item Collection* (CHEMTIC). CHEMTIC contains 225 items which are grouped into seven units. Item facilities, answers, and a users guide are also included. This collection was mainly prepared for the new Victorian Year 12 course.

During 1980 the development and examination of items have continued, and items relevant to courses in the various States have been obtained.

*Publications and Papers*

*ACER Chemistry Test Item Collection—CHEMTIC Year 12.* Hawthorn, Victoria: ACER, 1980.

Martin, P. The ACER Chemistry Test Item Collection. *Lab Talk*, 1980, 24, 37-8.

## Screening and Diagnostic Tests for Early Primary School

Helga A. H. Rowe, Gwendolyn Ellemor (half-time until 1 December 1979)

(This project is included in the ACER Core Program.)

The aim of this project is to provide a variety of screening and diagnostic tests designed for use by teachers of school beginners and in the early primary school years. School, personal, and social problems in later life have been limited by the failure to identify sources of disadvantage early in the child's school career. Later disadvantage may be reduced by early intervention which is tailored to the needs of the individual child.

The measures which are being developed at present cover a variety of learning skills, and include measures of social maturity and tests of language, early reading, number, and perceptual skills. In the development of the tests, every effort was made to produce measures which

meet the needs of teachers faced with the complexities of assessing the skills and performance of children with a limited knowledge of English and of those without kindergarten or pre-school experience.

All foreign language versions of the *ACER Checklists for School Beginners, Checklist for Parents* (1974) have been revised. The Arabic, Greek, Italian, Maltese, Serbo-Croatian, Spanish, and Turkish editions are now available in the same format as the English language version.

Trial forms for a series of language, perceptual skills, and reading readiness tests have been prepared. The feasibility of using the Rasch approach as a measurement model for these tests is being investigated. It is anticipated that this project will be completed by June 1981.

*Publications and Papers*

*ACER Checklists for School Beginners, Checklist for Parents.* (Rev. ed.). Hawthorn, Victoria: ACER, 1979.

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## Item Banking

John D. White (from November 1979)

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(This project is funded by a grant from the Victorian Education Department. Mr White is seconded from the Victorian Education Department.)

This project commenced in November 1979 and was introduced in response to the need to examine the latest developments of item banking in Australia and other countries. The project was initially conceived as a feasibility study of various models of on-going item banks and for the collection of background information about existing item banking facilities.

Mr J. White attended a planning meeting for an International Item Bank Project, held at the National Foundation for Educational Research, in England during the first week of February 1980. The purposes of this preparatory meeting were to review progress in developing item banks among countries represented, to establish a list of needs and priorities for an international item banking system to work in collaboration with national item banks, to discuss the detailed plan of work for the project, and to produce a report on actual and potential development and applications of item banking in the various participating countries. As a result of this meeting, a proposal was prepared for consideration by the IEA General Assembly.

On 26 and 27 May 1980, the ACER and the Victorian Education Department jointly convened a meeting to consider recent developments in item banking. At this meeting, representatives from all state and territory education departments were present as well as representatives from the ERDC, CDC, Schools Commission, VISE, and parent and teacher organizations. The meeting was chaired by Dr J. P. Keeves and was opened by Dr G. R. Maddocks (Assistant Director-General, Cur-

riculum and Planning, Victoria). Professor Hans Spada (University of Freiburg, FRG) and Dr Bruce Choppin (NFER, Great Britain) presented lead papers and discussion papers were presented by Mr Don Palmer (Tasmanian Education Department), Dr John Izard, and Mr John White (ACER). The meeting discussed various issues involved with the uses of item banks for assessment, examinations, and monitoring, and considered the role that an item bank consortium at a national level could play. The meeting proposed that the ACER should act as a clearing house for materials, information, research findings, expertise, and developments in Australia and overseas. It was also considered that it may be desirable to set up a small prototype item bank on which a feasibility study could be based.

The item bank project will undertake the establishment of a clearinghouse facility for item bank information and a publication will be prepared on the production of tests from item banks.

*Publications and Papers*

White, J. D. Item Bank Structures. Paper presented to Item Bank Meeting, at ACER, May 1980.

White, J. D. The Technical Organization of Item Banks in Australia. Paper presented at the preparatory meeting for the IEA Item Bank, at NFER, February 1980.

White, J. D. Tests and Examinations in the Educational System of Australia and the Potential Impact of Item Banking. Report for IEA Item Bank preparatory meeting, NFER, February 1980.

## DEVELOPMENT OF TESTS AND INSTRUMENTS FOR USE BY PSYCHOLOGISTS

### Revision of Adult and Higher Level Group Ability Tests

Robert W. Davey (until April 1980), Diana M. Bradshaw, John F. Izard

(This project is funded by ACER's income from sales.)

The revised version of Advanced Test AL—AQ has been normed together with a new parallel form, BL—BQ. Processing of data from both secondary school and post-secondary school samples has been completed and norm tables have been produced. Difficulty was experienced in obtaining sufficient suitable university samples and processing must be deferred until these additional data are available.

The revised version of Higher Test ML—MQ has been normed together with a new parallel form, PL—PQ. Analyses of technical data have been completed and norm tables have been prepared.

Manuals for these Advanced and Higher Tests have been prepared

and are in the final editing stages prior to publication. The norm tables for Advanced Test B40 have been revised, and another test, Advanced Test B78, has been developed and normed.

## Studies of Tests of General Ability

Helga A. H. Rowe

(This project is included in the ACER Core Program.)

During the past year, the major work in this project was related to the investigation of problem-solving processes. A number of studies have been conducted in which attempts were made to examine differences in performance in terms of qualitative features of the processes used in solving problems.

A number of structural components of these processes were identified empirically. The tasks investigated included items from Binet and Wechsler Intelligence Tests, simple mathematical problems, and verbal and performance puzzles of the types used by De Bono, Katona, and Scheerer.

A taxonomy of problem-solving behaviours was developed, and was shown to provide highly replicable and reliable measures of components of the problem-solving process. Distinctive patterns were observed in the strategies used in problem-solving.

The usefulness of the structural components of the problem-solving process for the description of individual and group differences with respect to specific tasks was investigated in terms of the use made of different strategies, and the sequences of the responses recorded.

Initial indications are that the variables identified in this study may provide useful indications of individual differences in cognitive functioning, problem-solving competence, speed of problem-solving, and educational level.

*Publications and Papers*

Rowe, H. A. H. Three-mode Factor Analysis: Problems of Interpretation and Possible Solutions. Paper delivered at 14th Annual Conference of the Australian Psychological Society, Hobart, August 1979. (Abstract). *Australian Psychologist*, 1979, 14, 222-3.

Rowe, H. A. H. Measuring the Nature of Performance Differences: A Process Approach. WISC-R and WISC: A Study of Redundancy and Comparability. Papers delivered at the 4th International Symposium on Educational Testing sponsored by the University of Leyden, the Netherlands, Educational Testing Service, USA, and the University of Antwerp, Belgium, at Antwerp, Belgium, June 1980.

Rowe, H. A. H. A Process-based Model for the Assessment of Problem-solving Benaviour. Paper delivered at the 22nd International Congress of Psychology, Leipzig, East Germany, July 1980.

## Revision of Intermediate Level General Ability Tests

Marion M. de Lemos

(This project is funded by ACER's income from sales.)

Following the revision and renorming of the ACER Higher and Advanced Level Group Ability Tests, the ACER has now commenced work on the revision of the Intermediate Level Group Ability Tests.

This project involves the revision of the content of the current ACER Intermediate Tests A and D. Four trial forms of the test have been constructed, using items from the current ACER Intermediate Level tests as well as a pool of new items and items taken from older unpublished ACER tests at this level. Most of the older items have been extensively revised.

The four trial forms of the test will be administered to samples of students in Melbourne metropolitan schools in July and, following the item analyses of the trial tests, final forms of the test will be constructed. These final forms will be normed on a national sample of Australian students in November 1980 together with an Australian adaptation of the Otis-Lennon School Ability Test, published in 1980 by the Psychological Corporation, USA.

# TESTING SERVICES AND PROGRAMS

## Australian Scholastic Aptitude Test (ASAT)

Graeme Withers, Lex Lees (to November 1979), George Morgan, Allyson Holbrook

(This program is funded from income from users.)

The ASAT Series I has been prepared for administration to the Year 12 populations, as usual, in the Australian Capital Territory, Queensland, and Western Australia. No changes were made to format or structure; however Series I will be printed in the user States, rather than centrally as in past years.

No national seminar was held this year: user representatives met in Melbourne in December to discuss on-going matters. At this meeting, the annual report on ASAT was tabled in draft form, together with a paper on the research on item chaining carried out during the 1979 trial testing.

Trial testing for Series I was conducted in South Australia in March 1980.

*Tests, Publications, and Papers*

Report on the 1979 Australian Scholastic Aptitude Test (ASAT Series H). Hawthorn, Victoria: ACER, 1979. (mimeo.)

Morgan, G. Report on Trial of Material for ASAT Series H, including Research on Linking. Hawthorn, Victoria: ACER, 1979. (mimeo.)

*Australian Scholastic Aptitude Test: Series I.* Hawthorn, Victoria: ACER, 1980.

## ASAT Special Testing Program

Noel McBean, Evelyn Watson

(This program is funded from income from users.)

Tertiary institutions offering courses for mature-age students have continued to make use of the two-hour versions of the Australian Scholastic Aptitude Test. In this program, ACER supplies tests on hire at dates specified by individual institutions. Subsequently papers are marked at the ACER and scores reported back to the institutions. Data based on scores are compiled for the total group of users as well as for individual institutions. Minor variations in procedure are allowable within the program. For instance, one institution continues to use a three-hour version of the test. The production of new tests to replace existing tests is being planned.

## Australian Law Schools Entrance Test

Graeme Withers

(This project is funded by the law schools of the Universities of Melbourne and New South Wales, Monash University and the Australian National University.)

The project continued with the preparation of Series B and C. Series B was prepared and administered to special entry candidates at the University of Melbourne, Monash University, and the Australian National University. This took place in November and March and approximately 350 persons were tested. Series C is expected to be published and used similarly for special intakes of law students for the 1981 academic year at all four universities.

*Tests, Publications and Papers*

*Australian Law Schools Entrance Test: Series B.* Hawthorn, Victoria: ACER, 1979.

## Co-operative Scholarship Testing Program

Evelyn Watson, Noel McBean

(This program is funded from income from users.)

This program has been conducted since 1962 for a number of independent schools in all Australian States. It provides a battery of tests at two levels: Level 1 for entrance to secondary school; Level 2 for continuation beyond either Year 8 or Year 9 (depending on the State). The areas examined at Level 1 are Written Expression, Humanities, and Mathematics. At Level 2, a Science component is included with the Mathematics. The overall regulation of the program resides in a policy committee representing independent schools and the ACER. The administration of the program, including development of tests, test marking, and score reporting is carried out by the ACER. Test scores, standardized by level and by State, are returned to schools. The use made of these scores varies, but it provides an important element in assessing scholarship candidates.

In 1980, approximately 12 000 candidates registered for scholarships offered by 112 schools. The candidates sat either at participating schools or at one of the 47 country centres or 41 overseas centres set up by the ACER. The tests used this year are from a new series which was developed over the years 1977 to 1979.

## Miscellaneous Testing Services

Noel McBean, Diana M. Bradshaw

(This program is funded from income from users and income from sales.)

### ETS Testing Program

The ACER has continued to supply supervisors and arrange accommodation for examination programs conducted by the Educational Testing Service, Princeton, New Jersey. This has resulted in 26 Saturday test sessions for a total of 282 candidates. Associated with this supervision has grown an advisory role with a heavy load of telephone enquiries from potential candidates seeking information about procedures for registration to take the various examinations.

### Psychological Corporation Testing Program

The ACER has continued to act as a Controlled Test Centre for the Psychological Corporation of New York. The control is exercised by the Corporation which specifies in detail the conditions under which tests may be undertaken and scores reported. Thirty-one candidates took the Miller Analogies Test. Of these, eight sat at the ACER. The remainder required interstate supervision which was arranged in each case by the

ACER. One interstate candidate sat for the Doppelt Mathematical Reasoning Test.

**Other Testing Programs**

A variety of duties fall under this heading: supervision of four test sessions for the American College Testing Proficiency Examination Program; marking of test papers and supply of scaled scores to the Victorian Railways; compilation of normative data on mathematics tests used by the Victorian Nursing Council; analysis of trial tests in physiotherapy for the Committee on Overseas and Professional Qualifications, together with an undertaking to mark tests in various subjects for the committee and to build a data bank; and the provision of scholarship papers for independent schools in the Co-operative Scholarship Testing Program which have candidates at levels not covered by that Program.

## PROGRAM OF LIBRARY AND INFORMATION SERVICES

### Australian Education Index

Margaret A. Findlay, Elspeth Miller

(This project is included in the ACER Core Program.)

There were further modifications in the new system for compilation of the *Australian Education Index* during the past year and successful production in the new format of four issues, including the cumulation, was carried out. The changes are generally accepted by users who indicate improved access to the records.

The conversion of the AEI files into a machine readable data base in AUSINET continues and the data base now includes 4000 records. Monthly usage figures of the file indicate acceptance and increased use by network participants. During January-May 1980 total usage of the data base was 2340 connect minutes.

These developments in both the hard copy and machine readable files, together with the promotion of the service by the editors through articles and seminar discussions, have generated considerable interest within the education community. Researchers are becoming aware that the files can be used not only as tools for finding out what others are doing but also to disseminate details of the work of their organizations. Consequently there is a significant increase in the number of documents submitted for inclusion.

A further enhancement of the data base has been the inclusion of records for documents collected by the TAFE National Clearinghouse from all state TAFE authorities. These documents are indexed by TAFE, and the records are submitted for editing and input using the AEI procedures. Provision has been made for identification of records in order to compile special listings or indexes of these records. The first batch of 191 records were processed during April-June 1980.

In addition, batches of records are being processed for the New South Wales Department of Education for the compilation of the second edition of *Guide and Index to Selected Material* by the Curriculum Information Project. AEI format has been adopted and a trial run was carried out during May 1980. Entries are not included in the Australian Education Data Base. However, a request has been made to the Department for permission to mount the file. Access to records for Australian curriculum materials is required to supplement the AEI files.

*Publications and Papers*

*Australian Education Index* (M. A. Findlay and E. Miller, Eds). Vol.22 (3 and annual cumulation); Vol.23 (1, 2). Hawthorn, Victoria: ACER, 1979-80.

Findlay, M. A. Accessing educational information through AUSINET. *Unicorn*, 1979, 5, 325-6.

## Australian Education Review

John P. Keeves

(This project is included in the ACER Core Program.)

### Education of Gifted Children

Josephine C. Jenkinson

A review of the literature on the education of gifted children was begun during 1979. Early in the course of the project, it became clear that a single review could not adequately encompass the whole field without being restricted to the relatively general treatment of topics that is already available in numerous publications elsewhere. It was decided that a more useful approach would be an examination of some of the assumptions about gifted children through a review that would aim to evaluate research on gifted children within the more general framework of cognitive psychology. Sections completed so far cover cognitive abilities of the gifted as revealed in test performance and school achievement, studies of cognitive development, studies of learning and problem solving by the gifted, and personality and social characteristics. It is planned to complete the review by looking at the implications of these studies in relation to identification and educational provisions, and to identify areas in which further research seems most needed.

### Bilingual Education

John M. Mills

A search of the literature has indicated the difficulty of defining bilingual education and has revealed several key variables in evaluating programs in schools. Definitions often include the teaching of foreign languages for cultural purposes or the teaching of foreign culture with incidental language learning, whereas the term is more properly applied to the structured use of two languages as media of instruction in a given curriculum. Evaluative variables include the sociological, such as the motivation of ethnic communications, the educational, such as the choice of program to be adopted in a school, and the psychological, such as the effects of 'semi-lingualism'.

Attention has been paid to the results of overseas experiments in bilingual education: these include the 'French-immersion' programs of Canada, language maintenance programs for the children of immigrant workers in affluent European countries, and the well-established and well-documented programs for minority groups in the USA. It is intended that investigations will continue into the tentative bilingual programs that have been set up in Australia, with a view to clarifying issues and guiding further development.

## The History of the ACER

Emeritus Professor W. F. Connell, Christopher J. Cook

(This project is funded by ACER's income from sales.)

A history of the ACER's first 50 years has now been written. Based on recollections of staff and other persons associated with the ACER, and on published and archival sources, the history gives an overview of the Council's development, its difficulties, and its achievements. It highlights the role of the first two Directors, K. S. Cunningham and W. C. Radford. Lengthy appendixes list members of the Council and staff, research and development activities, publications in selected series, and bibliographies of the writings of the three Directors. This is the first ACER publication which has used the word processor to prepare disks for direct transfer to typesetting.

## General Information Services

Phillip A. McKenzie, Robin G. Rowlands (Honorary Staff Member)

(This project is included in the ACER Core Program.)

An examination of the recurrent education debate from an economic perspective is being undertaken. The study comprises five main elements. First, consideration has been given to the various definitions of recurrent education employed in the literature; the objective of this examination is to distil the essential features of the recurrent education concept. Second, recent developments in both Australia and overseas that are consistent with the recurrent education concept are briefly described. Third, the contribution which economic analysis may make to the recurrent education debate is outlined, along with the inherent limitations of the tools of economic analysis in examining such a wide-ranging concept as recurrent education. This section concludes with a critical evaluation of the methodologies used so far by economists in the analysis of recurrent education.

The fourth section is the major element of the study. This section involves the examination from an economic perspective of some key areas of dispute in the recurrent education debate. The areas of dispute are classified as the potential benefits of a system of recurrent education and the potential costs of such a system.

The study concludes with a discussion of the implications of alternative financing mechanisms for the equity and efficiency objectives of a recurrent education system.

### The Asche Report

The Victorian Enquiry into Teacher Education is a committee established by the Minister of Education in Victoria under the chairmanship

of the Honourable Mr Justice A. Asche. It held its first meeting in December 1978, and was conducted under terms of reference similar to those of the National Enquiry into Teacher Education under the chairmanship of Professor J. J. Auchmuty. The Victorian Committee submitted its report to Parliament in February 1980, in the form of a very comprehensive publication entitled Teacher Education in Victoria. The ACER acted in a consultative capacity, especially during the later stages of the work when it undertook as its specific responsibility the preparation of Appendix B, entitled 'A Report on the Entry of Students into Courses for the Pre-service Education of Teachers and into Other Types of Tertiary Education'.

**The Pre-school Report**

At the request of the Australian Education Council, information was sought from the various state authorities and from the Australian Bureau of Statistics concerning the numbers of children of pre-school age in each State and the projections of the age group into the 1980s. The available information was included in a report prepared by the Melbourne Secretariat of the Australian Education Council.

**Sequel to the Asche Report**

It was considered desirable to make a further enquiry into certain aspects of the imbalance between the supply and demand for teachers. An interim supplementary report has been prepared covering such matters as the steps by which a total separation was brought about between the training authority and the employing authority.

The present study aims to clarify a number of issues raised in recent literature concerned with manpower planning and the future of the teaching profession.

*Publications and Papers*

Rowlands, R. G. A Report on the Entry of Students into Courses for the Pre-service Education of Teachers and into Other Types of Tertiary Education. In Victoria. Committee of the Victorian Enquiry into Teacher Education, *Teacher Education in Victoria: Interim Report.* (Chairman: The Honourable Mr Justice A. Asche). Melbourne: Government Printer, 1979-1980, Appendix B, 477-518.

## Philanthropic Trusts in Australia

Robin G. Rowlands (Honorary Staff Member)

(This project was funded from special grants.)

The third edition of this ACER publication was released in April 1980. It contains information concerning 292 trusts which between them disperse funds with a value in excess of $75 million per annum. This repre-

sents a significant sector of the Australian economy which is different in its purposes and mode of operation from both the public and the private sectors. In order to make the new edition more useful to applicants for funds, a new section has been added setting out guidelines on preparing an application for a grant. This should help to streamline the procedure and reduce the delays and disappointments which may so easily occur through ignorance or unfamiliarity with the requirements. The Association of Australian Philanthropic Trusts, which has sponsored the preparation and publication of the present volume by the ACER, aims to increase the value of philanthropy to the community and to attempt to ensure that areas of need are neither overlooked nor oversupported. There is considerable scope for research into the part played by philanthropic trusts in national development and for a much closer study of their influence on the Australian economy.

*Publications*

Australian Council for Educational Research. *Philanthropic Trusts in Australia*. Hawthorn, Victoria: ACER, 1980.

## Library

Margaret A. Findlay (Librarian), Christopher I. Cook, Elspeth Miller, Lula Psiliakos

(The library is funded in part from the Core Grant, but largely from ACER's income from sales.)

The library collection has continued to grow steadily during the period under review to a total of 16 700 titles. The increase in the Australian collection, which includes all material indexed in the *Australian Education Index*, reflects the rise in the number of Australian education publications published during the year and also the increased support of the education community for the Index. Every endeavour is made to ensure that the collection is relevant to on-going ACER projects.

Library usage by the ACER staff and other institutions continues to be kept at a high level and, during the year, 5700 items were borrowed by staff from the collection. Again, loans to other libraries were high with a total of 1690 which reflects the efficient service and speedy response time for these loans.

Constant effort is made to stay abreast of trends in computerized information retrieval. Searches are processed through the bibliographic data bases in AUSINET by using the dial-up link and terminal at the Swinburne College of Technology. The data bases of Lockheed Dialog in USA are also available for access through MIDAS.

The third edition of *Serials in Education in Australian Libraries: A Union List* was produced on computer output microfiche. Comments from

users indicate that consideration should be given to regular publication, perhaps at two- or three-year intervals.

Preliminary work has commenced on a new edition of *Bibliography of Education Theses in Australia*, covering the years 1973–80. It is intended to produce this bibliography during the forthcoming year and to add the file to the Australian Education Data Base in AUSINET.

*Publications*

Findlay, M. A. and Miller, E. *Serials in Education in Australian Libraries: A Union List.* 3rd ed. Hawthorn, Victoria: ACER, 1980.

# PROGRAM OF SURVEY AND PSYCHOMETRIC SERVICES

## Survey Research Services

Malcolm J. Rosier, Kenneth N. Ross, Stephen Farish, Mark Wilson

(This project is included in the ACER Core Program. Mr Farish and Mr Wilson are seconded from the Victorian Education Department.)

The Survey and Analysis Services Unit at the ACER provides advice and assistance to the ACER staff and to research workers in other institutions. Work on the updating of the ACER Sampling Frame was continued, with emphasis on the checking of school names and addresses, and the incorporation of new schools.

Several special sample designs were prepared for studies being undertaken in the Social Foundations of Education Division. These samples were designed for longitudinal studies, and the sample designs had to take account of difficulties associated with disproportionate sampling from strata, non-response patterns, and the need for stability in estimates derived over several data collections.

### Studies in Sample Design

These studies are concerned with the application and evaluation of sampling error estimation techniques which are appropriate for statistics derived from multi-stage complex sample designs. The main techniques which are being investigated are Taylor linearization, Balanced Repeated Replication, and the Jackknife process.

Literature reviews for each of these techniques have been prepared and the appropriate computer software has been written or adapted for use on local computing equipment. The data files for the study have been prepared and checked with preliminary test runs.

Some initial results from the study have been concerned with tests of robustness for the Rasch item analysis model under the conditions of random sampling of both persons and items.

## Australian Educational Data Archives

Malcolm J. Rosier

(This project is included in the ACER Core Program.)

This project has developed from the ACER's experience with large educational surveys co-ordinated by the International Association for the Evaluation of Educational Achievement (IEA). Funds from the ERDC allowed a small advisory committee to be set up. The Advisory

Committee consists of Professor Jonathan Anderson (Flinders University) as Chairman, Dr Malcolm Rosier, and Mr Ken Ross.

The report of the feasibility study has now been prepared. The report discusses reasons for the archiving of educational survey data and suggests procedures for cataloguing the data, and managing a data archives system. The report also contains a case study of the stages undertaken in building a computer file, based on the file building procedures adopted for the Second IEA Mathematics Study in Australia. Included in the report is an estimate of the expenditure required to maintain the proposed Australian Educational Data Archives System for the period 1981 to 1985.

*Publications and Papers*

Rosier, M. J. An Australian Educational Data Archives System. Hawthorn, Victoria: ACER, 1980. (mimeo).

## ASAT Validation Studies

George Morgan

(This project is included in the ACER Core Program.)

This project aims to assess the psychometric properties of the Australian Scholastic Aptitude Test, and to provide advice on its use.

A study was completed which examined whether it is feasible to equate different forms of the ASAT using the common item method within the Rasch item analysis framework. The findings of the study, which were presented in a paper at the recent Invitational Seminar on the Improvement of Measurement in Education and Psychology, indicate that the ASAT test forms can be characterized by a broad unidimensional latent trait of scholastic aptitude, and that useful equatings can be made between test forms at the whole test and sub-test levels. A second study has been in progress since August 1979, which is concerned with the validity of the special ASAT tests as instruments for selecting mature-age persons to tertiary courses. Test data for five forms of the Special ASAT have been obtained from Year 12 students in 30 randomly chosen schools in the Melbourne metropolitan area. Comparisons are being made between the performances of mature-age applicants and the sample of Year 12 students, and the predictive validities of the Special ASAT forms are being assessed in terms of the Higher School Certificate scores of the sample of Year 12 students.

*Publications and Papers*

Morgan, G. The Use of the Rasch Latent Trait Measurement Model in the Equating of Scholastic Aptitude Tests. Paper presented at the ACER Invitational Seminar on The Improvement of Measurement in Education and Psychology, University of Melbourne, May 1980.

## Studies in Criterion-Referenced Measurement

George Morgan

(This project is included in the ACER Core Program.)

An on-going activity of this project is to keep the ACER abreast of important developments in the field of criterion-referenced measurement and testing. Assistance was given to projects with the design and implementation of testing programs and with the interpretation of criterion-referenced test data.

During the past year, work continued on a study which is attempting to construct a criterion-referenced measurement procedure to monitor the longitudinal development of performance levels of examinees in the core areas of the school curriculum. Preliminary research has indicated that the Rasch latent trait model within a Bayesian decision-theoretic framework may provide the statistical means for accomplishing this aim.

## Studies in Latent Trait Measurement Models

John F. Izard, John D. White

(This project is funded by ACER's income from sales. Mr White is seconded from the Victorian Education Department).

These studies were concerned with investigations of the stability of parameter estimates and the robustness of the Rasch analysis procedures. Stability was assessed by applying the procedures to various random samples of data from the same population and comparing the different estimates of the same parameters. Robustness was investigated by adding a proportion of randomly generated data to real data obtained from responses to cloze, multiple-choice, and open-ended items. Results of the analyses with and without the random data were compared. Worksheets were developed to enable approximate hand-calculation methods to be used by teachers, and the accuracy of the hand-calculated estimates was assessed by comparison with results of computer analyses using real multiple-choice data. A series of staff training workshops was held to increase staff awareness of the advantages and disadvantages of various test analysis procedures.

*Publications and Papers*

Izard, J. F. The robustness of the Rasch analysis procedure. Paper presented at the 50th ANZAAS Congress, University of Adelaide, May 1980.

Izard, J. F. and White, J. D. The Use of the Latent Trait Models in the Development and Analysis of Classroom Tests. Paper presented at the ACER Invitational Seminar on The Improvement of Measurement in Education and Psychology, University of Melbourne, May 1980.

## Statistical Analysis and Psychometric Services

Glen A. Smith (until February 1980), Christopher J. Lokan (from 14 January 1980)

(This project is included in the ACER Core Program.)

The facilities for data analysis provided by the ACER's in-house computer have been used extensively during the past year. These facilities have been augmented by the writing of new FORTRAN programs, and programs written for use on other computers have been adapted or rewritten for in-house use. Complete documentation was prepared which describes all of the available programs.

The telephone links to ICI's IBM/370 computer and to the Cyber computer at the University of Melbourne have also received heavy use, with an average of some ten jobs sent to remote computers every day. The dial-up link to the Cyber computer at the University of Melbourne was terminated at the end of May. In its place, moves have been made to establish telephone links and terminal access to the FACOM computer at the Swinburne College of Technology.

## PROGRAM OF ADVISORY SERVICES

### Educational Advisory Services

Peter Jeffery, Patricia McLean (until April 1980), Barbara Johnson (from April 1980)

(The cost of Advisory Services is met entirely from ACER's income from sales.)

Undoubtedly the major innovation in 1979-80 was the publication of *set: Research Information for Teachers* as a dissemination activity. *set* has appeared once in its new joint Australian and New Zealand configuration, but this issue was preceded in 1979 by *set: Special Issue*. The entire printing of the Special Issue (3000) was sold by December 1979, and the subscription list for *set* 1980 has reached 3500 and is increasing steadily. The flow of suitable items for publication in *set* is improving as the availability of this new medium for transmission of research results becomes more widely known. The scope and coverage of *set* for New Zealand readers has been enhanced by access to more Australian content, and Australian teachers are accepting good material from New Zealand with interest. It would appear important that the subscription rate be kept within easy reach of schools and teachers.

During this year advisory staff have been firmly committed to a considerable expansion of advertising activity in support of ACER sales. Letters, brochures, order forms, and charts have been prepared and sent to libraries, universities and colleges of advanced education, all types of schools, and educational resource personnel. This commitment has been, we believe, reflected positively in the trading figures of the ACER.

The *ACER Annotated Catalogue* system has been maintained with two up-date mailings each of considerable size through expansion of the range of overseas and locally produced items which the ACER stocks for sale. An experiment involving the loan of *Advisory Teacher Test Sample Folders* to resource teachers in New South Wales regions is proceeding.

Despite these commitments, staff have striven to maintain the reputation for service to individual teachers seeking help by letter or telephone. Telephone enquiries from Sydney have shown a small increase since the opening of the Sydney telephone answering service. This facility is appreciated by New South Wales teachers and guidance officers, even those who have not yet used the facility to any great extent. Addresses on various aspects of research and evaluation have been given to groups of teachers in regions where requested. Test library loans have continued at a high level and, in addition, many displays have been mounted in all parts of Australia.

Good results have been achieved from the system of press releases and invitations to review each new ACER publication. The trend to increased visibility and more frequent reporting of ACER publications has continued and expanded. There is a steady flow of requests for *Pro-*

*ject News* statements from people wishing to keep abreast of current projects.

The *ACER Newsletter* circulation has been greatly expanded by the decision to distribute it to all schools in Australia. A number of principals of schools and other educators have written to compliment and thank the Council for this way of expanding their opportunities to keep up to date with the ACER and research.

*Publications and Papers*

*ACER Newsletter* No. 36, No. 37, and No. 38.
*set: Research Information for Teachers*, Special Issue, and 1980 (1).

## Psychological Advisory Services

Diana M. Bradshaw, Josephine C. Jenkinson

(The cost of Advisory Services is met entirely from ACER's income from sales.)

Displays of psychological tests were prepared for the annual conference of the Australian Psychological Society and the second annual conference of the Victorian Association for Gifted and Talented Children held in Victoria.

Two issues of the ACER *Bulletin for Psychologists* were published together with the 1980–81 *Psychological Catalogue*. In addition, an annotated bibliography on neuropsychological tests was compiled and a brochure of tests available for use by occupational therapists was prepared. These were produced to meet an increasing demand for information that was proving excessively time consuming when handled on an individual basis.

During the year, an unusually large volume of enquiries came from industry, partly through publicity about tests available from ACER for personnel selection in several trade journals.

*Publications and Papers*

*Bulletin for Psychologists* No. 27 and No. 28.

## Maintenance of Educational and Psychological Tests

Diana M. Bradshaw, Allyson Holbrook, Josephine C. Jenkinson, Meredith Shears

(This project is funded from ACER's income from sales.)

A revision of the manual for the *ACER Short Clerical Test* was completed in July 1979 and was distributed in draft form.

Completed test booklets returned to ACER for the *ACER Word Knowledge Test Adult Form B* have made it clear that an item analysis and

revision of the test will be necessary before existing norms are updated. This work will be continued during the coming year.

Metricated editions of *ACER Junior Test A* and *ACER Intermediate Test A* were produced for use until complete revisions are available.

An article was prepared for Bulletin for Psychologists No. 28 incorporating results from several small Australian samples on the Leadership Opinion Questionnaire.

**Tests of English Language Skills**

Two overseas batteries of tests of English expression and mechanics of English were adapted for Australian use. Two parallel forms were prepared and trial tested on Year 11 students at a matriculation college in the ACT. A further trial testing on the same group, reversing the forms, was undertaken approximately four months later. Conventional and Rasch item analyses were carried out and items selected for one final form. This form was administered to a standardizing sample early in 1980. Several additional samples have been arranged. Preliminary work on the preparation of a manual has begun.

## PUBLISHING

### AUSTRALIAN JOURNAL OF EDUCATION

Associate Professor R. L. Debus of the University of Sydney and his Assistant Editors have continued to edit the *Australian Journal of Education*. The basic subscription rate for the journal was raised to $13. The number of subscribers for 1979-80 stands at 198[illegible] of whom 668 are members of the State Institutes of Educational Research.

### AUSTRALIAN EDUCATION REVIEW

Although plans have been made for the preparation of numbers of the *Australian Education Review*, it has unfortunately not been possible to issue any numbers during the past 12 months. It is hoped that it will be possible to publish the Review during the coming year.

### PUBLISHING DIVISION ACTIVITIES

D[illegible] Maguire, Marcel Leman, Bronwyn Hay, Russell Hanna (until April 1980), Craig Dowsett (from May 1980)

The Division's involvement with project publications has continued to match the growth in the Council's research and development activities. The productivity required of the Division has been extended in order to meet these requirements and at the same time to deal with the new stock publications, which this year have included many new test items.

Time has also been found, in co-operation with library and administrative staff members, to complete the long-standing task of summarizing and reorganizing the publishing agreement records and updating the royalties payable and receivable lists.

Overseas interest in the Childrens Depression Scale has resulted in enquiries regarding publishing rights in a number of countries. To date, formal agreements have been exchanged with psychological publishers in Italy and Spain covering translation and publication rights in those countries under royalties to the authors and the ACER.

The House Style Notes were updated and re-issued and a section was added to cover the requirements of the word processor. The Division has the task of continually monitoring new technological advances in typesetting and printing and ensuring that the Council benefits from any resulting cost savings. One such advance is the direct typesetting from the word processor disks without need for further keystrokes. It is hoped that this innovation will speed up the publishing processes for certain ACER publications and significantly reduce costs.

The Division's representation on the Advertising Committee has allowed an attempt to be made to reach further into overseas markets by the production of brochures on ACER books. These have been sent to libraries in the United Kingdom and to a Chinese book display in Peking.

## Books, Reports, Papers, and Periodicals Published

### (a) Books, Reports, and Papers

*Teacher Preparation in Australia: A History of its Development from 1850 to 1950* by B. K. Hyams (ACER Research Series No.104).

*Educational Research for Policy Making in Australia* edited by John S. Shellard.

*Philanthropic Trusts in Australia* (3rd edition).

*Curriculum Style and Social Learning* by Kevin Piper (ACER Research Monograph No. 4).

*Between School and Adult Life: An Approach to the Evaluation of Pre-vocational Education in TAFE* by John Ainley and Adrian Fordham (ACER Research Monograph No. 5).

*School, Work, and Career: Seventeen-year-olds in Australia* by Trevor Williams, Jeff Clancy, Margaret Batten, Sue Girling-Butcher (ACER Research Monograph No. 6).

*The Evaluation of Staff Development in Technical and Further Education: A Proposed Methodology* by Adrian Fordham and John Ainley (ACER Research Monograph No. 7).

*Learning Time and Teaching for Mastery* by Graham Ward (Occasional Paper No. 15).

*Youth, Education, and Employment* by Peter Karmel (Radford Memorial Lecture). Published for the Australian Association for Research in Education.

*Serials in Education in Australian Libraries.* A source guide to serials indexed by the Australian Education Index and Educational Resources Information Centre (ERIC) and a union list of holdings in Australian libraries. Compiled by Margaret A. Findlay and Elspeth Miller. Third edition on COMfiche.

### (b) Periodicals

*ACER Newsletter* edited by Peter Jeffery.
No. 36 July 1979, No. 37 October 1979, No. 38 April 1980.

*Australian Education Index* compiled by Margaret A. Findlay and Elspeth Miller.
Vol. 22 No. 3, September 1979, Vol. 22 Cumulation 1979, Vol. 23 No. 1, March 1980.

*Bulletin for Psychologists* edited by Diana Bradshaw.
No. 26 August 1979, No. 27 February 1980.

### (c) Advisory Services Publications

*ACER Educational Catalogue 1980* (50 years edition).

*ACER Psychological Catalogue 1980 and Price List.*

*50 Years Serving Education: Australian Council for Educational Research* (brochure).

## Tests Published

### (a) Testing Services

*Co-operative Scholarship Testing Program.* Candidates Registration Form, Candidates Information Bulletin, List of Centres. Tests: Written Expression, Levels 1 and 2; Humanities, Levels 1 and 2; Mathematics, Level 1; Mathematics and Science, Level 2. Answer Booklet, Levels 1 and 2.

*Australian Scholastic Aptitude Test* Series I. Book I, Book II and WA version. Photographic masters forwarded to States for printing.

*ASAT (ACT) Students Information Bulletin.* 2nd ACT edition. Sample Collection of Questions (including Answer Sheet and Score Key).

*Australian Law Schools Entrance Test* (ALSET). Series B. Test Booklet and Answer Sheet.

### (b) Diagnostic Tests, Achievement Tests, and Teaching Aids

*Test of Enquiry Skills* (TOES) by Barry Fraser. Set of Test Masters, Teachers Handbook.

*ACER and University of Melbourne Music Evaluation Kit.* Handbook and Report.

*ACER Short Clerical Test (Form C).* Manual (Revised edition).

*Henshaw Secondary Mathematics Test* by John Henshaw. Test Booklet and Manual.

*ACER Class Achievement Test in Mathematics* (CATIM Year 4/5). Test Booklet, Teachers Manual, Answer Strip Sheet and Class Analysis Sheet.

*Benaviour Study Technique.* Teachers Guide (Isla Stamp), 1979 Edition.

*ACER Mathematics Profile Series.* Number Test. Test Booklet, Teachers Handbook, Score Key/Mastery Profile Cursor, Answer Sheet.

*ACER Physics Unit Tests.* Teachers Handbook. Revised Edition.

*ACER Physics Unit Test — Diagnostic Aids.* Diagnostic Aids 1 to 21.

*ACER Chemistry Test Item Collection* (ACER CHEMTIC YEAR 12). Units 1 to 6 and one achievement Test in item bank format.

## Kits Published

*Monash Diagnostic Test of Lip-reading Ability* by F. R. Perry. Colour video cassette incorporating six subtests covering both screening and diagnostic tests for words, phonemes, and sentences; manual; three training plates; response forms and booklets for each of the six subtests for the screening and diagnostic tests; record forms for the phonemes and words subtests of screening tests; scoring keys for each of the subtests. This limited quantity high-cost publication is restricted to an 'on-demand' production arrangement.

## Reprints

There were 310 separate reprints during the year, including *From School to Work* by Andrew Sturman.

## DISTRIBUTION SERVICES

Eric McIlroy, Alan W. Wilkins

All indices of trading activities recorded increases over those of 1978-79. Excluding journal subscriptions, 26 715 orders were received and processed during the year at an average of 500 per week, and this represents an increase of approximately 12.5 percent in the number of orders. Gross income of $1 578 000 for 1979-80 was $195 000 higher than the previous year.

On a State basis, sales were widely distributed throughout Australia in accordance with the following breakdown: New South Wales, $558 000; Victoria, $465 000; Queensland, $192 000; Western Australia, $141 000; South Australia, $78 000; Tasmania, $55 000; Australian Capital Territory, $46 000; Northern Territory, $18 000. Sales outside Australia were limited to $25 000. For orders within Australia, sales to education departments of $458 000 plus sales to other state departments of $217 000 amounted to approximately 43 pecent of the total. Direct supply to schools of $581 000, made up from $285 000 to government primary schools, $119 000 to government secondary schools, and $177 000 to non-government schools exceeded the education departments' total by $123 000, and continued the trend of an increase in direct supply to schools. The combined total of university and teacher education institutions purchases amounted to $148 000, with sales to industry, private psychologists, booksellers, etc. of $149 000.

The net increase over 1978-79 is the composite of several changes in different areas. In broad terms, the aggregate sales of tests and associated components of $1 170 000 provided 70 per cent of the total sales income. Test income increased by $121 000 or approximately 12 per cent and this area provided the majority of the total increase. The percentage increase in income from the sale of kits of educational materials was higher and the total income from this area was $313 000. Book sales income was effectively unchanged at $95 000 Some details of the various changes in the broad sales pattern are given in the following paragraphs.

The sale of ACER publications was $520 000; $250 000 was received from items printed by the ACER under licence from the original publisher; and $808 000 was received from the sale of non-ACER publications, the majority of which were imported direct from overseas. The combined ACER published and printed under licence items are thus responsible for nearly 50 per cent of the total sales income, and this is similar to 1978-79.

Stocks are now held of 297 basic titles of tests and materials amounting to 1300 separate components. there were 15 items with sales exceeding $20 000 to a cumulative total of $575 000, plus a further 21 items with sales between 10 000 and $20 000 cumulating to $30 000. One hundred and sixty items were in the middle range of $1000 to $10 000 sales income, with 91 items with sales below $1000. It will be seen therefore

that a relatively small number of items produced a significantly large proportion of the total sales income, with a reasonable level of demand for the large middle group of items. The demand or items with sales below $1000 is obviously limited with an aggregate income of $40 000, but these titles are maintained on a service-to-client policy.

The highest income earner for the year was the *Systematic Training for Effective Parenting* material, including the sale of 9000 Parents Handbooks which indicates the number of participants in training courses held during the year. The *Progressive Achievement Tests* Form A (Reading) and the ACER *Tests of Learning Ability* (TOL6) ranked second and fourth respectively in aggregate income. The *Wechsler Intelligence Scale for Children* (WISC-R) maintained its previous high ranking as third highest. Including these four items, the 20 top ranking sales income items comprised the *ACER Mathematics Test (AM Series), Western Australian Reading Development Scheme, Progessive Achievement Test Form B1* (Reading), *Revised Stanford-Binet Intelligence Scale, Boehm Test of Basic Concepts, ACER Primary Reading Survey Tests Form R, ACER Test of Learning Ability* (TOLA 4), *Peabody Language Development Kit Level P, Study Habits Evaluation and Instruction Kit, Otis Higher Test Form A, Standard Progressive Matrices, Reynell Developmental Language Scales, McCarthy Scales of Childrens Ability*, ACER *Physics Unit Tests, Wechsler Adult Intelligence Scale*, and the *Neale Analysis of Reading Ability*. With the exception of the *Study Habits—Evaluation and Instruction Kit* (SHEIK), which was printed during the year under licence from NZCER, all these items were published and stocked prior to 1979-80. It is interesting to note that the items listed comprise 11 educational tests, six psychological tests, and three kits of educational materials. Seven of the items are ACER publications, four are completely printed and three are partly printed under licence by ACER, with six items imported from the overseas publisher.

Stocks are now held of 233 book titles, most of which are ACER or NFER publications. There was a substantial change in the range of titles in stock because of a number of new publications with a number of other titles becoming out of print. Similar to the position in the test and materials area, a limited number of titles produced a disproportionate percentage of the total sales. The sale of 2400 copies of *Reading Appraisal Guide*, by Barbara Johnson, made this the most popular title, with *Childrens Developmental Progress from Birth to Five Years* maintaining the previous demand of 1400 copies for this NFER title. Other successful new publications were *Philanthropic Trusts in Australia, Curriculum Style and Social Learning*, and *From School to Work*.

## BUILDINGS AND ACCOMMODATION

After the opening of Radford House at the forty-ninth meeting of the Council on 13 September 19, there was clear recognition that the facilities available for staff were highly satisfactory. Most of the research staff have been provided with their own offices, the store has been expanded considerably, and the printing room has been re-located in a more appropriate position. The word-processing unit has been installed in a situation where it does not disturb other activities, and the library has been provided with adequate space for an expanding collection of books and serials. There were some minor problems remaining, such as the installation of air-conditioning for the computer and word-processing units. The new building is pleasant, functional, and easy to maintain, and the older building erected 16 years earlier, while having certain shortcomings such as the sound-proofing between offices, is standing the test of time and is in a very satisfactory condition. We have been grateful to the firm of Oakley and Parkes and Partners for the services they have continued to provide to ensure that there were no faults remaining in the construction of the new building.

## FINANCE

The grant received from the Commonwealth and State Governments amounted to a combined total of $590 000. This represented an increase above the level of the previous year and was intended to provide an additional member of staff to work on the establishment of the data archives. However it was rapidly eroded by inflation and was equivalent to a reduced effective level of funding below that of 1978-79. In late 1979 and the early months of 1980, we sought ways and means of trimming expenditure to live within the budget. For the first nine months of the 1979-80 financial year, the level of sales gave us great cause for concern.

Nevertheless, as a result probably of increased advertising and publicity material going to schools and other educational institutions, the last three months of the financial year saw a very useful upsurge in sales, and we ended the financial year in a satisfactory position.

## STAFF MATTERS

### Visiting Scholars at Home and Abroad

With increased office accommodation, it has been possible during the past year to welcome two visiting scholars. Dr Gordon W. Miller of the University of London, Institute of Education, University Teaching Methods Unit joined us for a period of three months from June to August 1979 and contributed to the discussion and development of several projects. In addition, Associate Professor Maurice Balson of Monash University joined us in April 1980 and will remain with us for a period of six months and perhaps longer. During his time at the ACER, he has been busy writing guidebooks for parents and teachers which we hope to be able to publish early in 1981. We are also hopeful that he will be able to find time during the coming months to prepare for publication a number in the *Australian Education Review* series titled 'A Decade of Developments in Early Childhood Education'. We have greatly enjoyed having both visitors working with us for sufficiently long periods for the exchange of ideas between staff and visitor, which has been both stimulating and thought-provoking.

The ACER is becoming a centre at which scholars visiting Australia under schemes conducted by the Australian Development Assistance Bureau are asking to work. Mr Robert Ntumi, Assistant Director of Curriculum of Ghana, joined us for a period of six months from July to December 1979. He worked under the supervision of Dr Williams, 'audited' courses conducted by ACER staff in the University of Melbourne School of Education, and formed many strong friendships with our staff. Mr Sahat Teepakomkut, from the Institute for the Promotion of Science Teaching and Technology, Bangkok, Thailand, joined us initially for only three weeks. However he chose to stay for a total period of seven months, since he found the help and guidance he was receiving from Mr S. F. Bourke and his colleagues of such great value.

There is clearly a growing interest in the South East Asian region for staff of research and development units to come to the ACER for extended periods of internship training. We recognize that we can make a useful contribution to education in other countries by providing this service. However, it must be recognized that staff who provide help and training do so on top of their other duties, since we make no direct provision in our program for such work. We currently have requests from two different countries in South East Asia to provide internship training. We welcome the opportunity to help and we can only hope that the training that we give, which is provided in an 'ad hoc' way, is the most effective possible under the circumstances.

In addition, we have been asked to provide help to countries in the South East Asian region, through staff working outside Australia for short periods. At the suggestion of Mr S. S. Dunn, Chairman of the

Education Research and Development Committee, Mr J. M. Mills is working in Port Moresby, Papua New Guinea, for a period of six to seven weeks to assist with the planning of an evaluation study of primary schooling. Furthermore, at the suggestion of Professor Dr T. Neville Postlethwaite, Mr K. N. Ross is visiting Tokyo, Japan for a period of four weeks to assist with a training conference for South East Asian research workers. Mr Ross is undertaking this work during his annual recreation leave. It is important that staff have opportunities to serve in a variety of settings; and we are hopeful that such work can be maintained although fearful that, if too many requests reach us, we will have to decline to help.

## Director's Activities

The past year has been a particularly busy one. As mentioned earlier the requests to assist with the inquiry into the procedures for the conduct of the Higher School Certificate Examination in New South Wales and to chair the Committee of Enquiry into Education in South Australia have placed heavy demands on my time. I have continued as a member of the Executive Committee of the Australian Association for Research in Education, the Australian National Commission for Unesco, the ACT Schools Accrediting Agency, the Committee for Research Activity of the Australian College of Education, the Advisory Board for the Centre for Research in Higher Education at the University of Melbourne, the Faculty of Education of the University of Melbourne, the Council of the Institute of Early Childhood Education in Victoria, the Senate of the State College of Victoria, and from November 1979 I have become a member of the Executive Committee of the Academy of the Social Sciences in Australia.

In September 1979, I was able to travel overseas to attend the IEA General Assembly which was held at the International Institute for Educational Planning in Paris. While in Paris, I was able to spend a valuable day at the offices of the Centre for Educational Research and Innovation and of the OECD Education Committee, then to travel to England to visit the Centre for Information on Language Teaching in London, and the National Foundation for Educational Research at Slough. I travelled home through the United States to visit the Carnegie Corporation and the Ford Foundation in New York and the University of Chicago, and to Toronto to visit the Ontario Institute for Studies in Education. Although it was a hurried trip, it enabled me to keep abreast with educational research programs in key centres and to undertake detailed planning for both the Seminar and Conference to be held in 1980 marking the fiftieth anniversary of the establishment of the ACER.

I am grateful to Dr John Izard and Dr Trevor Williams for their help and support while I have been away from the ACER.

## Resignations and Appointments

During the past 12 months the staff of the Council has seen some changes. We accepted with regret the resignation of Dr Glen Smith who,

in a period of just under two years, had set up a simple and efficient computing system for staff to use, and at the same time was able to initiate an effective program of research into studies of children with perceptual motor problems. An opportunity arose for him to take a tenured position in the Psychology Department of the University of Melbourne, where he will continue the work he began while at the ACER. We wish him every success in his future career and thank him for the help he gave and continues to give to the ACER in maintaining our computer services. Mr Robert Davey resigned early in 1980 to accept a position with the State Electricity Commission of Victoria. After working for an initial period as a Research Assistant, he took on the responsibility of planning and conducting the program of revising and renorming the adult and higher general ability tests. His thorough work and sustained efforts carried this program very successfully through to its closing stages. Mrs Lex Lees left us in late 1979 to live in Sydney. Her work on the development of the humanities and social science sections of the Australian Scholastic Aptitude Test, the mature age ASAT test, and the CSTP tests has been greatly appreciated. Dr Graeme Hubbert, on completion of the evaluation study of the Education Program for Unemployed Youth, left the ACER to take up a position at the Royal Melbourne Institute of Technology concerned with the evaluation of TAFE programs. Several staff on temporary appointments as research assistants, Miss Kathleen Howard, Miss Gwendoline Ellemor, and Miss Linda Ryvitch, left us to take other positions. We regretted that the work that they were appointed to do was of a short-term nature. Mrs Patricia McLean, who in a short period of just over 12 months had re-organized the work of Assistant Educational Advisory Services Officer on to a very effective and efficient routine, resigned early in 1980. She did much in a relatively short time. Miss Claire Robinson, Mr Peter Martin, and Mr Michael Bourne, who worked with us for varying periods on secondment from the Victorian Education Department for internship training, returned to the Department at the end of their secondment periods. Mr Martin's efforts and enthusiasm resulted in the publication of a very valuable collection of chemistry test items for use with a new course in chemistry at the Year 12 level. Mr Robert Priest who had worked as a research assistant left us to go overseas, as did Mrs Maree Taylor. Mr Russell Hanna, an artist in the publishing section, left to take another position, as did Mr Robert Gibson from the store. Mr John White who joined us from the New Zealand Education Department left to undertake further study at La Trobe University, and Mrs Edith Cooper, who had punched with care and accuracy countless tens of thousands of cards and carried out complex clerical tasks, left to undertake secretarial duties. The contributions of all to the work of the Council have been greatly appreciated.

Newcomers to the ACER staff have included a sizable group on secondment for a variety of purposes from the Victorian Education Department. Mr John White has taken charge of the Victorian School Assessment Testing Project assisted by Mrs Jacki Stanyon, Mr Lee Waddell, and Mr Mark Lim. Dr Chris Commons has continued the develop-

ment of the collection of chemistry test items. Mr Douglas Couper has been working in the survey and analysis services unit, and has coped well with many problems while Dr Rosier has been on long-service leave. Mr Chris Lokan has joined us on a short-term appointment to keep the computer system working smoothly and to build up the range of computer programs for use within house. Mr Craig Dowsett has continued the work of drawing and design in the publishing section, Miss Susan Leith is working in the general office, and Mr Peter Gilder is working in the store.

### Education Research and Development Committee Fellows

This year we have had only one person for short-term training under the Education Research and Development Committee program. Miss Judy Boreham undertook a six-week internship program during the early months of 1980. She gained experience by working on several projects.

### Work Experience

The ACER is continuing to provide work experience both for students at school and for students undertaking postgraduate training. Mrs E. Atkinson, from the Caulfield Institute of Technology, and Mr M. Rosan, from Swinburne College of Technology, gained experience working with the Psychological Advisory Services staff. Mrs Judith Desai, a student from the RMIT School of Librarianship, worked for several weeks in the ACER library as did Miss Isolde Forstmanis from the Ballarat College of Advanced Education. In addition, students gaining work experience while still at school have included Miss Wai-Man Mui and Miss Susan Leith, both of Blackburn South High School. Miss Leith appears to have enjoyed the experience so much that she continued working with us after the training program was completed.

### Visitors from Overseas

Visitors to the ACER from overseas during 1979-80 have included the following:

Mr M. J. Foley, NZ Education Department, Wellington, New Zealand
Professor F. Wirt, University of Illinois, Illinois, USA
Mr P. F. Cuttance, University of Aarhus, Denmark
Mr Richard Balkwill, Macmillan Publishing Company, London, UK
Dr P. D. K. Ramsey, University of Waikat, Hamilton, New Zealand
Professor J. Rosner, University of Austin, Texas, USA
Dr Mona Valesno, NETC, Manila, Philippines
Mr Soedyarto, BP3K, Djakarta, Indonesia
Mr Kentaro Kihara, NIER, Tokyo, Japan
Ms Lee Sow Ling, Ministry of Education, Singapore
Mr Saat Chongkol, Ministry of Education, Thailand
Mr Gir Ilagi, Department of Education, Papua New Guinea
Mr Arich Djalil, GP3K, Djakarta, Indonesia
Mr Rustam Nurdin, BP3K, Djakarta, Indonesia
Mr J. G. Morris, Ministry of Education, Edinburgh, Scotland
Miss B. Jennison, Department of Education, University of Cambridge, UK

Professor N. L. Gage, Stanford University, Palo Alto, California, USA
Professor I. Lehmann, Michigan State University, Michigan, USA
Emeritus Professor G. W. Parkyn, Auckland, New Zealand
Dr K. Pickens, NZCER, Wellington, New Zealand
Dr Denis Doyle, The Brookings Institute, Washington, USA
Professor Sumadi, Jogjakarta, Indonesia
Mrs M. Morrisby, England
Ms Y. Pongboriboon, Thailand
Dr G. Papadopoulos, OECD, Paris
Professor H. Spada, University of Freiberg, Germany (FRG)
Dr B. Choppin, NFER, Slough, England
Mr N. Reid, NZCER, Wellington, New Zealand
Ms P. Fenwick, NZ Education Department, Wellington, New Zealand
The lunchtime discussions that the Social Foundations of Education staff had with Dr George Papadopoulos were greatly appreciated

## Professional Travel Overseas

During the past 12 months, several members of staff have been able to work and study overseas for short periods under the ACER Outside Studies Program. Dr J. E. Izard attended the International Association for Educational Assessment Conference at the Educational Testing Service, Princeton, New Jersey. After the conference Dr Izard worked for two months at ETS. While in the United States he also visited the Psychological Corporation and Teachers College Press in New York, and the Center for Study of Evaluation, University of California, the Instructional Objectives Exchange, and Western Psychological Services in Los Angeles. Dr M. de Lemos was awarded 18 days leave and a grant under the Outside Studies Program to attend conferences in Paris and Scandinavia during 1979, and Mrs H. Rowe was awarded 15 days leave and a grant for travel to attend conferences in Antwerp and Leipzig. Mrs Rowe read papers at these conferences. Dr A. M. Fordham worked under the supervision of Professor N. L. Gage at Stanford University, California, for a period of six weeks on the development of materials for use in the IEA Teaching for Learning Study.

Under the provision for overseas conference leave, Mr G. Withers attended and read a paper at the RELC–SEAMEO Seminar on 'The Assessment of English as a Second Language' in Singapore; and Miss M. Shears attended the third planning meeting for the International Work Importance Study in Lisbon, Portugal. While overseas she visited the National Council for Careers Education and Counselling in Britain.

Dr J. Lokan was granted leave to attend the IAEVG/NICEC/UNESCO Conference on 'Guidance and the School Curriculum' held at Wolfson College, Cambridge, England; Dr M. J. Rosier attended and presented a paper at the IEA Curriculum Symposium at Bielefeld, FRG, and also attended a meeting of National Research Co-ordinators for the second IEA Mathematics Study; and Mr J. D. White attended an IEA Item Bank Planning Meeting at NFER, Slough, England. Participation in these meetings did not involve the ACER in any expense.

Professional travel overseas is seen by the Council as an important aspect of staff development.

### Long-service Leave

Dr M. de Lemos took long-service leave and a period of leave without pay to travel overseas to Europe and the United States, and Dr M. J. Rosier took long-service leave for a period of three months to travel around Australia.

### Seminars and Staff Training

Much of the training received while working on secondment at the ACER or as a member of staff arises informally from internship activity. From time to time, however, deliberate efforts are made to conduct workshops to provide more formal training. Mr Ken Ross, Mr Jeff Clancy, and Mr Doug Couper have run workshops at different times during the past year to provide training in the use of the OSIRIS collection of computer programs. Dr John Izard has during recent months conducted workshops on the Rasch procedures for the analysis of test data. On behalf of the Australian Association for Research in Education, Dr Trevor Williams ran at the ACER a very successful workshop on the 'Structural Equation Models' that was attended by several ACER staff. In addition, the ACER hosted an AARE workshop conducted by Professor Martin Cooper and Dr Michael Petty of the University of New South Wales on 'The Full Rank Model'. Such workshops provide excellent training in the use of new techniques of analysis for ACER staff and others.

The program of discussions held during Thursday lunchtimes, now known as 'Thursday Forum', has continued during the past year with the introduction of the occasional seminar being led by an outside speaker. The following speakers have come from outside the ACER: Dr John Owen (Melbourne State College) on 'Research into the Diffusion and Implementation of ASEP'; Dr Gerald Bourke (Monash University) on 'Youth Unemployment'; Professor John Biggs (University of Newcastle) on 'Persons, Situations and Study Processes'; and Mr John Cheetham, (Victorian Foundation on Alcoholism and Drug Dependence) on 'School-based Drug Prevention Programs: Effective or Ineffective'. Dr J. G. Ainley is to be thanked by all staff for undertaking to arrange the series of both outside and ACER speakers. The Thursday Forum plays an important part in the activities of the ACER.

### Higher Degree Studies

Several members of staff have completed or are working on theses for higher degrees. Frequently these theses are related to their work at the ACER and are supervised by ACER staff members. Dr J. F. Izard was awarded the degree of Doctor of Philosophy by La Trobe University for a thesis on 'An investigation of the effects of spatial and other abilities on children's performance in area, volume and related aspects of school mathematics curriculum'. Work on this thesis was largely undertaken

prior to Dr Izard's joining the ACER staff. Ms B. Johnson was awarded the degree of Master of Education by the University of Melbourne with a minor thesis entitled 'Understanding reading difficulties: an alternative for teachers'. Mrs H. Rowe has completed the writing of a thesis in the field of problem-solving, under the supervision of Professor A. Wearing of the University of Melbourne.

Work for a higher degree provides opportunities for staff to develop the skills, so essential in educational research, of analysing evidence and writing a detailed report on a specific research topic. It is, however, important for the ACER to ensure that the subject of the investigation is in full agreement with the Council's research program.

## Australian Association for Research in Education

ACER staff took a major part in the planning of the Annual Conference of the Australian Association for Research in Education which was held at Melbourne State College from Thursday, 8 November to Sunday, 11 November 1979. Dr R. G. Rowlands was the Conference Registrar and Dr J. Lokan the Conference Treasurer. Dr A. M. Fordham was the organizer of a workshop conducted by Professor N. L. Gage of Stanford University on 'New Directions for Research in Teaching', and Mrs M. Findlay convened an informal workshop on accessing educational information in Australia and conducted demonstrations on information searching through AUSINET. Dr J. P. Keeves with Mr S. S. Dunn convened an interest group meeting on 'The Training of Educational Researchers'.

The Radford Memorial Lecture was given on Friday, 9 November by Professor P. H. Karmel on 'Youth, Education and Employment'. The ACER published the lecture for the AARE within a few weeks in order to give the contents of the lecture wider dissemination.

Several staff members contributed to the conference with papers: Dr J. G. Ainley on 'Resources and Methods in Science Teaching'; Dr A. M. Fordham and Dr J. G. Ainley on 'Some Aspects of Pre-vocational Education'; Mr S. F. Bourke on 'Error Patterns in Computation'; Dr J. P. Keeves and Dr R. Lewis on 'Analysing Data from Naturalistic Classroom Studies', and Professor B. McGaw, Dr J. P. Keeves and others on 'The Mediated Influence of Prior Performance on Subsequent Performance: An Analysis of Linear Structured Relationships'. The conference was a success from the research, the level of participation, and the financial aspects.

During the past 12 months, the ACER has hosted two AARE workshops, since it is seen to be important that the Council should be fully involved in the introduction of new approaches into educational research and in many activities of the Association.

## Involvement with the State Institutes

Dr T. H. Williams conducted a two-day workshop for the Western Australian Institute of Educational Research in Perth in September 1979 on 'Structural Equation Models'. Mr K. N. Ross conducted a two-day

workshop in Melbourne for the Victorian Institute of Educational Research on 'Sample Design for Educational Survey Research'. Mr K. Piper spoke at the Annual General Meeting of the VIER on Friday, 14 March 1980 on 'The Social Learning Project: Some Outcomes and Implications', and Mr D. W. Fox, a former member of staff, spoke at the November meeting of VIER on the study he had carried out at the ACER titled 'Educating for Leisure'. Dr R. G. Rowlands, an honorary staff member of the ACER, is undertaking work to co-ordinate the activities of the State Institutes.

## Lecturing and Other Commitments

Another aspect of staff development is that of providing members of staff with opportunities to present their views and the findings of their research in a systematic way. With this in mind, a sum of money is set aside each year of approximately $5000 to provide support for staff to attend conferences and to present papers at these conferences. Only in the cases of junior staff or in cases where the ACER needs to be represented at a conference for purposes of display of ACER materials for sale is a member of staff permitted to attend without being required to give a paper. The occasions during the past year on which members of staff have attended conferences or seminars within Australia are too numerous to mention. However, if the paper presented was a product of the ACER research program, reference has already been made to that paper as part of the report on the project concerned.

The ACER has continued to maintain close links with the School of Education of the University of Melbourne. Dr T. H. Williams and Dr J. P. Keeves are continuing to conduct the course in the MEd program titled 'Educational Environment and Student Achievement'. Dr J. F. Izard and Mr K. N. Ross, with assistance from other members of staff take a two-term course in Measurement and Evaluation as part of the BEd program. Also included in the BEd program is the course conducted by Mr G. Withers with assistance from ACER staff on 'Problem Study of Secondary School Examinations'.

At Monash University, Mrs J. C. Jenkinson conducted a semester unit within the Diploma of Educational Psychology course on 'Human Abilities: Their Nature and Assessment'; while, at the Royal Melbourne Institute of Technology, Mrs H. A. H. Rowe is conducting course units on 'Problems in School Settings' and 'Aspects of Psychological Measurement' within the Graduate Diploma on Educational Counselling.

ACER staff serve other institutions and organizations in a wide variety of ways. Dr T. H. Williams is chairman of the Research, Evaluation, and Development Committee of the Australian Pre-School Association. Dr J. F. Izard and Mr K. N. Ross are members of committees advising on the conduct of the state and federal Disadvantaged Schools Program. Dr Izard was a member of the accreditation sub-committee for the Melbourne State College graduate diploma in evaluation and assessment. Mr K. Piper is a member of the Victorian Advisory Committee on the Teaching of Social Sciences in Secondary Schools, and is convener of

the curriculum framework sub-committee. Mrs H. A. H. Rowe is a member of the Standing Committee on Tests and Testing of the Australian Psychological Society.

Dr J. G. Ainley and Mr G. P. Withers serve various committees of VISE as the Institute seeks to develop new procedures for accreditation and assessment of courses at the HSC level in Victoria. Dr Ainley is also a member of the Melbourne State College Tertiary Education Research Unit Advisory Committee.

During the past year, Dr J. G. Ainley was acting editor of the *Australian Science Teachers Journal* (until December 1979) and has continued as Research Section Editor. Mr P. Jeffery, who for a long period was editor of *Modern Teaching* published by the Modern Teaching Methods Association, has relinquished the position to concentrate his efforts on the production of *set*.

Dr M. J. Rosier, who has been honorary secretary of the Australian Science Teachers Association for more than 10 years, has resigned from the position, thus shifting the secretarial responsibility from the ACER where it has been located for a period of 17 years. However Dr C. Commons is now a member of the committee of the Science Teachers Association of Victoria.

## CONCLUSION

To sustain a program of research and development over a long period is a difficult task for any institution. To carry out research work of high quality demands both creative and dedicated effort from staff. The skills required by research workers in education are many and varied. They range from imaginative thought during the planning stages to dogged persistence to ensure that every piece of information is as accurate as possible. They include competence in using a computer, as well as the ability to express ideas clearly in writing. They comprise often working to difficult deadlines, in addition to a demand for perfection to ensure that errors do not creep into the text or into a piece of statistical analysis. Furthermore, they involve a facility with words, as well as a facility in the use of quantitative procedures. The Council has been well served by its staff at all levels over recent years, and we believe the quality of the research coming from the ACER is high. Nevertheless, there are times of anxiety, as well as times of quiet satisfaction when examining the product of a piece of research that has been well done and that contributes to the understanding of a particular problem or that provides evidence for future policy and practice.

As the Council looks back over a period of 50 years of service to education in Australia, it is essential to recall the efforts of the research staff both at the present time and in the past. They must be commended for their contributions, both large and small, to education in Australia, and they must be thanked for their efforts to produce research of the highest quality. It is also important to remember that the research staff at the ACER are supported and assisted by a team who code questionnaires, who type reports, who package parcels to be sent to schools, who edit tests and reports, and who keep records of the expenditure on each specific project. Without their patient and dedicated help, even the best designed research investigation would founder. They play an important part in every study that is carried out at the ACER.

In addition, the ACER staff members are exceedingly fortunate in the help and advice they receive from those who voluntarily and willingly assist through membership of advisory committees. Many have been named in this report as members of the Council of the ACER or as members of the committees who advise on the programs of research in each of the three divisions. There are, however, other groups of people who provide advice and help with specific projects. An examination of records indicated that there were, during the 1979-80 year, as many as 14 such committees that gave advice on specific studies involving, in the main, persons from outside the ACER. Furthermore, there were three projects in which the work undertaken was guided by a person who was not a member of the ACER staff. The Council is most grateful for the help and counsel it receives from the many friends who assist its program of research in these ways. Without their help, the work of the ACER would

be of lesser quality. We take this opportunity to assure them that their help is greatly appreciated by members of staff, and by the Council of the ACER. Over the 50 years of its existence, the ACER has built up an immense reservoir of goodwill among people working in the fields of education and psychology. This goodwill is shown by a readiness to assist and by the efforts made to ensure that the help and advice provided is as useful as possible. In return, the ACER staff and Council must continue in every way possible to serve education in Australia during the years ahead.

# Contributions to Council Funds

The Council acknowledges, with thanks, the following contributions received during the financial year ending 30 June 1980:

### Australian Governments: General Grants for Research

| | |
|---|---|
| Commonwealth | $295 000 |
| New South Wales | $112 483.50 |
| Victoria | $ 81 420 |
| Queensland | $ 43 247 |
| South Australia | $ 26 373 |
| Western Australia | $ 21 240 |
| Tasmania | $ 10 236.50 |

### Special Grants

Grants to specific projects were made by:

Members of the Association of Australian Philanthropic Trusts
Commonwealth Department of Education
Curriculum Development Centre
Commonwealth Department of Immigration and Ethnic Affairs
Education Research and Development Committee
Schools Commission
Tertiary Education Commission, Technical and Further Education Council
Victoria Institute of Colleges from the Malcolm and Annie Moore Estate

and from the

State Education Departments through the Australian Education Council.

# ACER Staff

(As at 1 July 1980)

## DIRECTOR

John P. Keeves, BSc, DipEd, MEd, PhD, fil dr, FACE, FASSA

## ASSISTANT DIRECTORS

John F. Izard, TPTC, BSc, MEd, PhD, MACE
Trevor H. Williams, BSc, DipEd, BA, MA, PhD, MACE

## RESEARCH AND DEVELOPMENT

John G. Ainley, BSc, MEd, PhD, MACE, ARACI
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Jeffery J. Clancy, BA
*Chris Commons, BSc, PhD, DipEd
*Douglas T. Couper, BSc(Ed) BSc(Hons)
Marion M. de Lemos, BSc(Hons), MSc, PhD, MAPsS
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Sue Girling-Butcher, DipMedTech, BA
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Faye Holzer, TSTC, BA, BEd
Warren Jones, BSc(Hons), PhD, MAPsS
*Mark Lim, BSc, BEd
Christopher Lokan, BSc(Hons)
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Jillian Mason, BA(Hons), DipEd
Noel McBean, BA, DipEd (part-time)
Phillip A. McKenzie, BEc(Hons), DipEd
John M. Mills, BA(Hons), DipEd, MEd
George Morgan, BSc(Hons), DipEd, MSc, MEd
Kevin J. Piper, BA(Hons), DipEd
Malcolm J. Rosier, BSc, MEd, PhD, fil dr
Kenneth N. Ross, BSc, MEd
Helga A. H. Rowe, BA(Hons), MAPsS, MIAPP
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Meredith Shears, BA(Hons)
*Jacki Stanyon, BA(Hons), DipEd
Andrew Sturman, BSc(Hons)
A. Graham Ward, MA, BEd, MEd
*Lee Waddell, BA, MA, Teaching Credential
Evelyn Watson, BA
*John D. White, BSc, MEd
*Mark Wilson, BSc(Hons), DipEd
Graeme P. Withers, BA, ACTT

* Seconded staff from the Victorian Education Department

## ADVISORY SERVICES

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Barbara Johnson, BA, DipEd, BEd, MEd

### Psychological

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Josephine C. Jenkinson, BA, DipEd Psych, MAPsS

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Gwenneth Dobell (part-time)

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Christopher J. Cook, BA(Hons), ALAA
Elspeth Miller, BA(Hons)
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Betty J. Segar (part-time)

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Susan Leith
Gloria Locock
Beatrice Raiola
Jean Ramus (part-time)
Carol Shackleton (part-time)
M. Doreen Webb (part-time)

## CLERICAL AND TECHNICAL ASSISTANTS

Claire Bayley
June Maunder

# State Institutes of Educational Research

## Nature and Function

The State Institutes are autonomous bodies, each nominating one representative to the governing body of The Australian Council for Educational Research, and co-operating closely with it when occasion requires. In 1956, at a meeting held in Melbourne, these representatives formulated the following statement of the nature and functions of an Institute. In general, as the reports printed later will show, they carry out the functions in different ways and with different emphases.

The object of the Institute is to act as a learned body devoted to the promotion of study and research in education, emphasizing the scientific study of educational problems, by means of the following activities:

A Disseminating
  (i) research, either
    (a) the results of specific pieces of research done by members; or
    (b) reports on the collection of research information;
  (ii) opinion and accounts of practices in education.

B Participating in
  (i) the discussion, planning, and criticism of research projects;
  (ii) the active carrying out of research projects.

C Establishing areas of contact with other educational groups.

## Membership on Council of ACER

The term of office of an Institute representative on the Council of the ACER is four years, and the dates of appointment are arranged to provide a continuity of membership of the Council.

## NEW SOUTH WALES

### Office Bearers

*Patron:* Sir Harold Wyndham
*President:* Dr I. Smith
*Vice-Presidents:* Mr R. Catts, Professor D. Drinkwater, Dr L. Higgins
*Secretary:* Mr I. Burnard
*Treasurer:* Dr B. Southwell
*Librarian-Research Officer:* Mr R. Philps
*Delegate to ACER:* Professor J. Keats
*Alternate Delegate and Editor of Australian Journal of Education:* Associate Professor R. Debus
*Assistant Editor of Australian Journal of Education:* Dr J. Sheppard
*Additional Committee Members:* Mr J. Harvey, Mr J. Shellard, Editor of Bulletin, Mr A. Watson
*Co-opted Committee Members:* Dr J. Barrett, Ms J. Cust, Dr K. Sinclair, Dr D. Thew, Mr D. Thew

### Meetings

It was decided that the theme for the year should revolve around that adopted by the ACER for its 50 years celebrations; hence the theme: 'Social change and the quality of life: The contribution of educational research'. Early in the year, working parties were formed to discuss and to react to papers sponsored by the ACER and written by leading Australian educationists in preparation for the ACER Invitational Conference held in August. Over 30 members participated, and three papers of reaction were prepared for the Conference. Subsequently Dr L. Higgins and Mr F.P. White represented the Institute at the Conference. They, together with Dr C. Field and Dr W. Donovan, had chaired the working parties.

6 July 1979. Research in progress: Dr K. Sinclair, University of Sydney, 'Social change and adolescent development'; Dr L. Higgins, Sydney Teachers College, 'Developmental factors in children's picture interpretation'

21 September 1979. Dr R.T. Fitzgerald, Burwood State College, 'Disadvantaged children in a changing world'

26 October 1979. Institute members' reports, 'Research in progress'

23 November 1979. Professor D. Fitzgerald, University of New England, 'Computers in the classroom'

26 February 1980. Professor G.W. Ford, University of New South Wales, 'The impact of technological change in education'.

28 March 1980. Dr R.J.R. King, University of Sydney, 'Social changes in the family with special reference to issues for education'

18 April 1980. Mrs J. Blackburn, Schools Commission, 'The future shape of Australian education'

30 May 1980. Public meeting, University of Sydney: Professor R.L. Thorndike, Teachers College, Columbia University, 'Measurement in education and psychology with reference to social issues emerging for education in the USA'
The Executive met on five occasions during the year.

## NEWCASTLE BRANCH

### Office Bearers

*Chairman:* Dr E. Braggett
*Vice-Chairmen:* Dr J. Miles, Dr D. Huxley, Dr M. Jurd
*Secretary:* Mr J. Schiller
*Treasurer:* Mr B. Howard
*Additional Committee Members:* Mr J. Foster, Dr J. Kirby, Dr D. Keats

### Branch Meetings

9 August 1979. Professor R. Lowe, 'Issues in humanistic research procedures'
26 September 1979. Mr C. Willoughby, 'Educational developments in the Hunter Region'
27 March 1980. Mr B. Howard, 'Readability in mathematics'
21 April 1980. Mrs J. Blackburn, Schools Commission, 'The future shape of Australian education'
9 June 1980. Professor R.L. Thorndike, Teachers College, Columbia University, 'Problems of measurement in education and psychology'

### Membership

Membership is 153, of whom 105 are currently financial. There are 37 members in the Newcastle Branch, of whom 29 are currently financial.

### Publication

The 1980 issue of the *Bulletin* covers the proceedings for the year 1979.

### Financial Statement

The financial statement showed a credit balance of $1019 for the year ended 12 September 1980. The Newcastle Branch had a credit balance of $534.

## VICTORIA

### Office Bearers

*President:* Dr L.W. Shears
*Vice-Presidents:* Miss I. Palmer, Dr G. Allen
*Honorary Secretary:* Mr P. Nattrass
*Honorary Assistant Secretary:* Mr K. Hall
*Honorary Treasurer:* Mr F. Hindley
*Representative to ACER:* Dr G. Whitehead
*Committee:* Dr R. Rowlands, Mr H. Hobbs, Miss A. Ridsdale, Mr G. Bradshaw, Mr M. Boyce, Mrs M. Ainley
*Primary Education Today Group Representative:* Mr T. Holland
*Research Group Representative:* Mr I. Ball

### Meetings

10 August 1979. Frank Tate Memorial Lecture. Professor John Bremer, Director, Institute of Socratic Study, and Professor of Education, Western Washington State University, 'Community as school—Pan and Peter Pan'
12 September 1979. John Smyth Memorial Lecture: Professor K. Marjoribanks, University of Adelaide, 'Ethnic families and children's achievements'
14 March 1980. Annual meeting. Mr K. Piper, ACER, 'The social learning project: some outcomes and implications'
20 May 1980. John Smyth Memorial Lecture. Professor R.L. Thorndike, Teachers College, Columbia University, 'The application of Bayesian thinking to educational measurement problems'
Five executive meetings were held.

### Membership

In June 1980, the membership was 309 (cf. 1979, 363; 1978, 358).

### Publication

*VIER Bulletin* No. 43 and No. 44 have been distributed.

### Primary Education Today Group

PET continued to operate a program offering information on innovative practices and recent research in education.

### Research Group

3-4 October 1979. Seminar. Mr K. Ross, ACER, 'Sample design for educational survey research'

### G.S. Browne Prize

No award was made.

## QUEENSLAND

### Office Bearers

*Patron:* Mr W. Wood
*President:* Mr P. Varley
*Vice-Presidents:* Miss J. Bedford, Professor W.J. Campbell, Mr P. Maccoll
*Honorary Secretary:* Mrs D. Muir
*Honorary Treasurer:* Mr R. Skidmore
*Executive Members:* Mr N. Alford, Sister J. Farnham, Mr J. Jacobson, Professor B. Watts, Mr R. Warry, Mr R. Wilkes
*Representative to ACER.* Mr N. Alford
*Honorary Auditor:* Dr L. Miller
*Assistant Editor of Australian Journal of Education:* Mr R. Warry

### Meetings

The public lecture series of the past few years have not attracted large audiences, with some notable exceptions. It has become apparent that people are discriminating in their attendances and tend to select those activities that have a direct practical application to them and their work rather than broad general interest areas. For this reason, the Institute has focused on two types of activities for 1980: the preparation of papers for the ACER Invitational Conference and a focusing on specific school-based research. A major activity was the review and preparation of reactions to the perspectives in the formal background papers to the Conference, on the four inter-related stages of analysis of the interactions between education and changes in the wider society. This was felt to be a valuable activity in that it provided opportunity for analysis of the Queensland society and educational system against the broader Australian context. Since public lectures fail to attract practising teachers and since one of QIER's functions is to disseminate research and new knowledge in education, the executive is planning a workshop in school-based evaluation.

7 August 1979. Mr J. Pratt, 'Current and future issues in education'
3 September 1979. In conjunction with the University of Queensland Department of Education. Mr H. Collis, 'Gifted and talented children'
26 September 1979. Professor B.R. Williams, 'Education, training, and employment in the 1980s'
20 February 1980. Annual General Meeting, Bardon Professional Centre. Robinson Memorial Lecture. Professor W.F. Connell, 'The contribution of the ACER and the State Institutes to education over the past 50 years'

### Members

QIER has 85 financial members. Membership continues to draw most heavily upon tertiary education institutions and the Queensland Department of Education.

## Publication

The *QIER Journal* continues to be published three times a year and a number of country members maintain their subscriptions to QIER largely for the Journal. Institutional subscription continues to increase slowly with colleges of advanced education as the major subscribers.

## History

Mr N. Anderson undertook in 1979 to compile a history of the QIER to 1980. This history has been completed and is being prepared for publication as a special issue of the Journal.

## Financial Statement

The total funds held on 5 August 1980 were $884.66. The Annual General Meeting approved the raising of membership fees to $7.00 per year with an additional $10.00 for the Australian Journal of Education subscription.

## SOUTH AUSTRALIA

### Office Bearers

*President and Representative to ACER:* Dr B.J. Webber
*Vice-Presidents:* Dr A.J. Shinkfield, Miss D.K. Briggs
*Secretary:* Dr E.R. Sandercock
*Treasurer:* Mr D. Dent
*Committee:* Miss J. Nicol, Dr J. Langrehr, Miss M. Parslow, Dr D.H. Kuhl
*Co-opted Committee Member:* Mr R. Coggins

### Meetings

17 July 1979. Panel discussion. Mr W. Marsh, SA Education Department, Dr V.G. Eyers, Adelaide College of the Arts and Education; Ms N. Golding, Employable Teachers Association, 'Teacher selection'. From this meeting, recommendations for research in areas relating to the selection of teachers were formulated.
14 August 1979. Ms B. Rebhuhn-Perrin, St Croix Central School District, Wisconsin, 'Recent research into the process, practice, and evaluation of mainstreaming handicapped children'
27 November 1979. Dr Jillian Maling Keepes, Adelaide College of the Arts and Education, 'Evaluation of the Multi-arts Project'
4 March 1980. Annual General Meeting. Dr J. Langrehr, Adelaide College of the Arts and Education, 'Interaction between learners and the learning environment'
22 April 1980. Organized by Murraylands Regional Office of the Education Department at Murray Bridge. Dr D.B. Williams, and Mr R.A. Craig, Roseworthy College of Advanced Education, 'The country school and the school leaver'
10 June 1980. The executive invited some 50 leading South Australian educationists to a meeting to discuss the four background papers to the ACER Invitational Conference. From this meeting, and a special meeting of the SAIER committee, a paper entitled 'Notes on background papers' was written as the SAIER contribution to the Conference.

A feature of the meetings has been the large proportion which have been jointly sponsored. This is an indication of the recognition which SAIER is achieving within the State and of the good relations which it has with other organizations interested in educational research.

The 'spin-off' from the ACER Invitational Conference on 'Societal change and its impact on education' was evident. The discussions relating to the background papers provided a focus throughout the year.

### Membership

Financial membership has remained relatively static at 52. Each of the meetings brought different audiences, and there was only a small nucleus of people interested in the total program for the year. The meeting at Murray Bridge was well attended, with between 40 and 50 interested participants.

## Classroom Research

Early in the year, the Institute offered through the SAIT Journal, limited financial assistance ($100) for classroom research. Two submissions were received and, after a review by the Committee, a proposal from the Keller Road Primary School was funded from the special research account for $87.60. A request from the Elizabeth Park Speech and Hearing Centre is still under review. Both proposals sought funding for the publishing and distribution of the evaluations of their projects.

## Financial Statement

The General Account stood at $732.69; the Special Account, $228.04 (as at 14 August 1980).

## WESTERN AUSTRALIA

### Office Bearers

*Patron:* Dr D. Mossenson
*President:* Mr M. Angus
*Vice-President:* Dr M. Clark
*Immediate Past President:* Mr J. Liddelow
*Secretary/Treasurer:* Mr P. Deschamp
*Committee Members:* Mr D. Tomlinson, Mr J. Liddelow, Mr J. Williamson
*Assistant Editor of Australian Journal of Education:* Professor B. McGaw
*Honorary Auditor:* Mr L. Olsson

### Meetings

2 August 1979. Mr P. Hill. Presentation and discussion with authors of ERDC report, 'A national study of open area schools'
3 September 1979. The executive prepared a paper for the ACER Council meeting, 1979.
5-6 September 1979. Research training workshop, Mt Lawley College of Advanced Education. Dr T. Williams, Australian Council for Educational Research, 'Path analysis'
3 October 1979. Dr B. Joyce, 'Models for staff development: the contemporary basis in research'
18-19 October 1979. Research training workshop, Murdoch University. Dr R. Straton and Dr S. Kemmis, 'Case study methods'
19 February 1980. Dr Doyle, 'Use of school finance mechanisms to create choice and diversity in education'
20 March 1980. Annual General Meeting
21 May 1980. Initial meeting of Social Change Interest Group. The group was formed with the purpose of developing a Western Australian reaction to the background papers for the ACER Invitational Conference.

### Prizes

Claremont College of Advanced Education: Mr M. Jones
Graylands College of Advanced Education: Ms J. Clayton
Mount Lawley College of Advanced Education: Ms Y. Eikelboom
Nedlands College of Advanced Education: Ms C. Pearson
University of Western Australia: Mr J. Brown